TRENDS IN EDUCATION

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Teachers and Industry
Class Sizes
Sex Education
School Drama Survey
Team Teaching
Economics in Schools

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CONTENTS

NUMBER FIVE JANUARY 1967

The Employment Frontier 3

Learning About Sex
by Martyn Clémans 9

Education for Leisure
by J. A. Simpson 16

Drama Survey Begins
by John Allen 24

Three American Developments

Team Teaching
by K. Lovell 26

Objective Examinations
by H. G. Macintosh 31

'Literate on Economics'
by Wynne Lloyd 37

Pupils, Teachers and Classes 42

In Response To . . . 46

Books 50

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Schools and industry are moving closer together. Both are becoming more aware of the work of the technical colleges. New relationships are being developed all along the frontier that school leavers have to cross.

The Employment Frontier

If, as the years go by, employers and teachers come to understand each other a good deal better than in the past, they may look back to 1963 as the year in which there was a quickening of pace. There were certainly a number of new initiatives being taken then along the sometimes rather forsaken frontiers between those who teach and those who employ the nation's younger generation.

It was the year in which the Neddy report on conditions favourable to faster growth opened with a chapter on education, in which the Ministry of Education sent every secondary school a new 40-page booklet on further education for school leavers, and in which both sides of the House of Commons welcomed the Industrial Training Bill. It was also the year in which the Newsom report recommended that 'the school programme in the final year ought to be deliberately outgoing' and found 'a strong need for many more courses and conferences for teachers which would bring them into contact with representatives of industry and further education', and in which the British Employers' Confederation promoted pilot 'introduction to industry' schemes for serving teachers with the possibility of something similar for student teachers in training. It was also National Productivity Year, celebrated in some areas by conferences of industrialists and educationists, such as the one in Leicestershire which set up a working party to strengthen the scope for future liaison. It was the year too in which the National Advisory Council for Education in Industry and Commerce appointed a working party to advise on the public relations of further education—that part of the education service which has feet firmly planted on both sides of the frontier.

More than coincidence is at work when a single year shows so much evidence of minds thinking alike. What in fact were they thinking? What was the common thread running through these new patterns of relationship between educators and employers? Was it perhaps the recognition that a vigorous and progressive educational system and a vigorous and progressive economy are in practice so closely intertwined that neither can be sensibly thought about or healthily developed without the other? Was it too the growing realisation that young people do not undergo dramatic transmogrification when they exchange the label of pupil for that of employee: they are the same young people, whose experience is continuous and cumulative and who need therefore the benefit of an education which is also continuous and cumulative? These two principles—of the indivisible society and the indivisible individual—certainly help to explain the growing interest of economic planners in schools and colleges and of educational planners in industry and commerce.

Three years later it is too early to assess the impact of this new awareness on the work of schools, of the further education system, and of training in industry. But enough is now happening to make it profitable to take, as it were, a few aerial pictures along the frontier. In this article three such pictures are brought together. The first is of the BEC initiative in Staffordshire, leading to experiments in five areas conducted and assessed by the Schools Council and the Confederation of British Industry. The second is of the Leicestershire scheme to make schools and industry better known to each other. The third is of the work now going forward to make both schools and industry more informed about the further education establishments.

Following Staffordshire's Lead

With the blessing of the Newsom Committee the BEC and the Staffordshire authority made a joint approach in the spring of 1964: in a pilot scheme five student teachers were seconded for three weeks to separate industrial or commercial concerns for work and training. One result is that the authority is repeating the experiment each year with a much larger number of students. Another result is that the Schools Council, the BEC (now merged in the Confederation of British Industry) and the Scottish Education Department have collaborated to run similar schemes for serving teachers. A report on the latter project was published for the Schools Council in July 1966 as Working Paper No. 7 with the title *Closer links between teachers and industry and commerce.* Teachers from secondary schools in Essex, Glamorgan, Manchester and several areas in Scotland took part in the summer and autumn of 1965. The aims were:

(i) to give teachers insight into the experience of young people entering working life, with a view to enabling them to relate more closely the teaching during the last years at school to the practical needs of adult life;

(ii) to provide teachers with a better appreciation of the educational and other standards employers expect their young entrants to attain;

(iii) to bring about a greater understanding between employers and teachers, which would help to improve the value to young people of the final years at school and increase their willingness to pursue courses of further education and training when they enter employment.

It was also envisaged that, among the other benefits likely to be derived from them, the schemes would on the one hand enable employers to appreciate some of the difficulties with which teachers are faced and to discern how their firms might help; and, on the other, help teachers better to understand the organisation and objectives of industry and commerce as well as the part played by trades unions. It was hoped, too, that, if the scheme developed on a larger scale, the schools would eventually have a fair number of teachers with some industrial or commercial experience and that this would help them to engage more closely the interests and motives of their pupils as they prepared to enter the adult world and would augment their careers guidance work.

The first aim was the most nearly attained. The other two, reported the Schools Council, 'are capable of development in future schemes in order to ensure that teachers, industry and commerce help each other

to form a realistic view of what is desirable and what is possible'. It emerged that 'the courses enabled employers to describe in some detail the qualities and qualifications for further training they would like to find in new recruits' and that they 'also allowed teachers to describe their view of the personal education of the young adult as a continuing process and emphasise the part of industry and commerce in it and, in a more practical area, to comment constructively on the training methods used by firms'. The general impression employers sought to leave with the teachers was that firms were eager, and need, to provide training and related further education but that many young recruits were ill-prepared to take advantage of these opportunities and, indeed often were unwilling to do so. 'Their unawareness of the standards required for various courses of further education was recognised by some teachers as one reason for this and their fresh appreciation that such standards were needed gave greater realism to employers' demands for higher attainments in basic subjects'. It was perhaps an astonishing conclusion that school teachers had to go into industry for three weeks to discover the importance of further education for school leavers. They had also, said the Schools Council, 'gained an insight not only into the everyday working milieu of the young school leaver and the quality of personal response for which that calls, but also into the values, somewhat different from those of school, placed on application, self-criticism of performance, speed and discipline.'

Reporting that a number of authorities would be seconding teachers to local industry and commerce in the next academic year, the Schools Council commented: 'Such an extension of the relationship between schools and firms should coincide with the developing work of the Youth Employment Service, which might join in sponsoring it. The design of local arrangements will vary, but it is plainly desirable that in general their object should be to secure that schools, colleges and employers are in effective contact with each other so that pupils leave school with greater self-confidence and assurance.'

The Leicestershire Scheme

There appear to be a number of differences between the scheme reported by the Schools Council and the one developed in Leicestershire. One is the degree of involvement of the trade unions: the TUC backed the Schools Council/CBT scheme at national level but there may have been closer working links in Leicestershire. Another is that principals of colleges of further education have sat side-by-side with secondary school headmasters in the work of planning. The third is that as well as visits to industry by teachers the scheme has provided for visits by industrial personnel to schools. The fourth is that the visits are part of a wider programme.

The working party set up in late 1963 remitted to its study groups three questions:

(i) Exploration of the need to devise a code of practice for the induction of young people into employment which trade associations in the county could be asked to recommend to all firms, both large and small. This investigation to include an examination on a broad front of the best of current practice.

(ii) The establishment of a scheme which would enable teachers to acquire closer understanding and experience of industry and

management and unions a better understanding of the different types of education and facilities provided in the schools.

(iii) A study of the question of the social training being given in schools and of the need for the continuing of this aspect of education in further education and in work.

Visits were made both to schools and factories and a number of distinct but inter-related proposals put forward to stimulate the two-way flow of understanding: secondment of secondary school teachers on full pay for one-week courses in industry; opportunities for newly appointed heads to visit industry to learn at first hand about the industrial pattern in the area; a winter course of evening lectures by union officials and industrial executives for teachers not attending the one-week course; arrangements for organised visits to schools by representatives from industry.

The pilot scheme for one-week courses was carried out between November 1965 and February 1966. The programmes, drawn up in consultation with the firms, included introductions to the industries, visits of observation, and discussions with management, trade union representatives, personnel officers, and the principal of the local college of further education. The teachers all agreed that through this insight they would be able to talk to pupils and parents with more confidence and authority and that schools should do far more to facilitate the smooth transition of pupils from school to work. As a result the authority is planning to involve the whole of its secondary teacher force in a series of one week secondments starting at the rate of 150 teachers a year.

After reviewing the results achieved in the pilot course, it was decided to institute a series of twenty one-week courses between September 1966 and March 1967 under the aegis of the local productivity associations. A circular letter was sent by the associations to firms in their areas asking them if they wished to participate. Over forty said they were interested and these were invited to send representatives to a meeting so that the aims and purposes of the scheme could be explained more fully. Following this meeting a questionnaire was sent out to the firms co-operating in the scheme in order that they could indicate when they would be able to accommodate a course and to provide information relating to the facilities they would be able to offer. It was found that there was no difficulty in obtaining offers from a sufficient number of firms to complete the programme. The firms participating in the scheme will reciprocate by sending representatives to selected county schools for visits covering all aspects of the schools' work.

Provision is also being made for industry and commerce to help in the social training given in the schools: by providing speakers to visit schools and by providing facilities in firms for teachers engaged in social training. The subjects to be covered include industry and the State, management structure, trade unions, industrial relations, production and productivity, research and development, and the social implications of automation. The compilers of the list comment modestly that the list is not exhaustive and 'additions could well be made'. The course is aimed at the middle 50 per cent of boys and girls and would not include those normally expected to continue to higher education. Arrangements would be made with the CSE regional

examining board to include the subjects listed so that they could be included in fourth or fifth year curricula. A first year experiment along these lines has been completed at Hinckley Grammar School.

The scheme to devise a code of practice for the induction of young people into employment, including the examination on a broad front of the best current practice, is an ambitious one. In this venture the county is collaborating closely with Loughborough University of Technology who have agreed to direct the research.

Technical College Links

It is apparent from both the schemes reviewed above that schools, as well as employers, could with benefit to themselves and to their pupils and young employees know more about the work of the technical colleges, which in their governing bodies, their teaching staffs and the content of their courses already have the advantage of close co-operation between education and industry. The third picture in this trip along the frontier can therefore appositely show how school, college and industry are being brought closer together as a result of the Alexander report to the NACEIC on *The Public Relations of Further Education*. The report recommended:

(i) that there must be an adequate and well-directed flow of information; and

(ii) that positive steps must be taken to promote understanding and co-operation.

To this end it was suggested that appointments should be made at four levels—nationally, regionally, locally, and in the colleges themselves—to direct the flow of information and promote understanding and co-operation. The Secretary of State (Mr. Michael Stewart) responded by commending the report to local authorities and by strengthening his own information staff with an officer working full-time on further education, and there is no doubt that a network of nominated officials is beginning to be built up throughout the country and will become an increasingly important feature of educational and industrial development. The role of the Education Department is to stimulate and co-ordinate. Detailed information and advice can only be given at local information points by those actually providing facilities on the ground. It will be for the Department to keep them informed about a rapidly developing service and to support them with a suitable range of publicity material.

The centre piece of the Department's contribution is a free quarterly journal called *On Course*, so-called for at least two reasons: because it is about movement in a chosen direction, from school through the colleges towards industry; and because the distinguishing feature of students at the colleges is that they are working on a particular course with a particular qualification as their end-object. Designed to act as a link between the schools, the colleges themselves and industry, the new journal was launched on the 25th April, 1966, by the Minister of State, Mr. Goronwy Roberts. Forty-five thousand copies of the first edition were printed and offered to secondary schools and technical colleges (through the local education authorities) and to industry. Within a month demands from education and industry (either for a specimen copy or to go on the regular mailing list) had exhausted the first printing and a further 5,000 copies were printed. By the time the third edition was published (October last) a firm mailing list of over

30,000 readers in education and in industry had been established. The response to the new journal from all quarters was encouraging evidence in itself of the new awareness of the need for information and the development of common aims.

The associated items of publicity that have been launched with *On Course* (a leaflet for industry, a leaflet for parents, two school notice-board posters, and a revised edition of the booklet *Further Education for School Leavers*) met with an equally warm response.

Meanwhile there has been a perceptible quickening of information activity by the Regional Advisory Councils, the local education authorities, and the technical colleges themselves. The RACs have been strengthening their public relations organisation generally, by establishing closer links with the Department's Information Division and with the regional offices of the Central Office of Information; and, in a number of cases, by appointing additional staff charged with the specific job of public relations. Collectively, the RACs have produced in their new and enlarged *Compendium of Advanced Courses in Technical Colleges*, a comprehensive reference book that has already established itself as a *vade mecum* of technical education at the higher level. The interest of local authorities and colleges all over the country was demonstrated in the late summer of 1966 when the new Information and Advisory Service on degree courses in technical colleges was launched. The speed with which local authorities appointed Local Advisory Officers for this purpose, and the efficiency with which the colleges completed and despatched their weekly vacancy returns to the Department, were the main factors in the immediate success which attended the scheme.

There can be no doubt that activities of the kind described in this article will be affecting the work of teachers and local education administrators increasingly and in a variety of ways. The end product of them all will be to replace the abruptness of school-leaving by a process that begins quite early in the secondary school course and continues well into the early years of employment. Careers teachers, youth employment officers, industrial training officers and others with specific tasks along the frontier should in the result find their work being made easier by understanding and support from growing numbers of colleagues on both sides.

Personal aspects of health education are discussed in a new pamphlet[1]. This article reports some changing ideas on teaching about sex in schools.

Learning About Sex

MARTYN CLÉMANS

'The physiological knowledge necessary to an understanding of the process of human reproduction comes to everyone sooner or later'. With this slight overstatement began Board of Education pamphlet 119, issued in the dark days of 1943. The pamphlet went on: 'The proverbial gooseberry bush, the stork, or the doctor's bag may, it is hoped, now be regarded as finally discarded. A simple maxim is, whatever the age of the child, and whatever the question he asks, answer him to the fullest extent that he is capable of understanding at that age'. This advice is as valid today as it was 23 years ago, and the indications are that it is now being increasingly applied.

Today sex education is seen as part of a much wider programme designed at giving young people a positive attitude to health generally, with sex as part of 'education for maturity' or 'education for personal relationships'. These ideas are set out in the new pamphlet, *Health in Education*, published by the Department. Health education should be very much more than the course of lessons in hygiene thought appropriate a few years ago. The state of well-being that the World Health Organisation is aiming at when it says: 'Health is a state of complete physical, mental and social well-being not merely freedom from disease or infirmity' should be the school's aim for all its pupils. This demands a policy for health education which makes it an influence pervading all school activity.

Where the staff of a school all have a positive view about health, as far as such things as the need to keep carbohydrate intake down, to reduce smoking and take exercise are concerned, such a programme of education will be of great value; and this approach is discussed at some length in *Health in Education*. Apart from health projects generally, a good deal is being done to provide children with the information they need, at the right age.

The following quotation is from the frank material prepared for primary children by one LEA:

> 'Look at this picture of the womb containing the fully developed baby, which is ready to be born. During labour, the strong muscles of the womb begin to squeeze and push. Gradually the entrance of the womb begins to open and slowly the baby begins to be born, usually head first. The mother can feel the squeezing of the muscles in the wall of the womb and she may have a pain rather like cramp. She will not mind the pain too much because she is so pleased at the thought of having her baby. It is hard work for the mother. Her nurse and her doctor will be doing all that they can to help her.

[1] *Health in Education*, Education pamphlet No. 49, HMSO, 1966.

'When the baby's head has passed out of the entrance to the womb, the moment of birth is very near. The vagina, which you will remember is pleated, and also very elastic, stretches to let the baby's head, followed by its body, out'.

One might contrast this approach with the following, taken from a pamphlet on the same subject published in 1911:

'We have spoken of birds and flowers as some of the beautiful living things in God's world. Can we find out by watching how their life begins? They grow, you will say, from a seed, or come out of an egg. Quite true. But where did the life of the seed come from? What gave it the life which made it able to grow and kept it from just shrivelling-up to nothing when it was put into the ground? And what made one part of the egg grow into a little bird which was able to pierce its shell and come out into the big world with feet to walk and wings to fly? Now listen! Did not the little seed first grow in the body of the grown-up flower and share the life of the plant? And was not the egg in the same way in the body of the mother bird, growing from a seed and sharing her life? And so it is with every one of us. Each little child that comes into the world begins as a seed in the body of its mother and gets its life from her'.[2]

The first may not be very poetic but it leaves nothing out, the second may be more lyrical but it raises more questions than it answers.

The idea that the schools should involve themselves in sex education goes back at least to the pre-World War I period. Sociologist Nora March wrote in 1913: '. . . it is generally accepted by educationists, medical authorities, social workers, sociological students, and, to a growing extent by the general public, that sex enlightenment of children (in school) is urgently desirable'. Acknowledging this in its 1943 pamphlet the Board of Education added: 'a substantial proportion of parents either have some reluctance to give this knowledge to their children, or feel the need of some guidance how best to deal with the matter'.

Reading what one might call the literature of sex education from the early 'twenties until the present day, one sometimes gets the impression that we have been endlessly repeating ourselves. For instance, in evidence to the National Birth-rate Commission set up in 1920 to investigate ways of repairing the ravages of World War I,[3] Dr. Sibly (sometime President of the Private Schools Association) had insisted that early education in the subject of sex was essential and that it should not be left 'until fourteen or even ten'.

The Birth-rate Commission was convinced by evidence that it heard that, 'however difficult and delicate the task may be, it (the sex education of the young) is one that cannot with due regard to the moral safety and welfare of youth, be shirked but must be undertaken, and should be therefore considered, not as an irksome duty, but as a privilege'.

At that time the biological approach was becoming paramount, just as before the war the emphasis had been largely religious. This remained true throughout the 1920s and 1930s. The Board's 1943 pamphlet supported it: 'It is the general view that sex instruction should be

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[2]From *God Saw That It Was Good*—an address to parents on the Moral Training of Boys and Girls by Mrs. House, 1911.

[3]See *Youth and Race* (4th Report of National Birth-rate Commission), 1923.

given as part of a wider course, especially biology, so that sex and reproduction may be introduced in their proper place without undue emphasis'.

No Uniform Pattern

The extent of what is being done, and the detailed content is different in practically every area of the country that makes any attempt to tackle the subject. Some LEAs have set up, or are in the course of setting up, schemes integrated into the work of their schools. Some of them make use of specially trained teachers, others employ specialists of various kinds who visit the schools in peripatetic fashion. Some have taken the view that the subject is best handled with large groups, others that small informal seminars are better; some use visual aids extensively (a programme for teaching machines is being prepared), others do not introduce them at all. There is no uniform pattern.

Most areas seek to involve parents in what they are doing. In one area in Lancashire, for instance, an experiment was carried out to educate parents and enable them to cope with this part of their responsibility more efficiently.[4] The thesis was that by about the age of nine children should be given some of the basic facts of sex in an accurate and sympathetic way and that from this age onwards the subject should be gradually developed rather than thrust on a child too hard and too late. At a parents' meeting the films *Learning to Live*, *Women of Tomorrow* and *Boy to Man* were shown and the booklet *What shall I tell my Child?*[5] was distributed. The first two films were later shown again to girls from secondary modern and grammar schools in the town, accompanied by their parents. Seventy-five per cent of parents attended. The purpose of the project was to help break down some of the barriers of reticence that exist between children and their parents on this subject. A follow-up questionnaire revealed that there was agreement among those parents who attended that the project achieved its purpose. The questionnaire also showed that there is very little agreement among parents about the age at which children should first be given information of this kind. About 50 per cent of parents appeared to think it should be tackled somewhere in the age range 11 to 14. The rest were about equally divided into those who thought it should be before eleven and those who considered after fourteen early enough. Two parents in the group thought eighteen was young enough! What the 25 per cent of parents who took no interest in the project thought is, of course, not known.

The usual criticism one meets of schemes of this kind is that it is the children of just the parents who fail to attend who are most in need of information. The general feeling of the Lancashire LEA is that the present scheme should be dovetailed with direct teaching in the schools.

The County Borough of Oxford aims at just this kind of integration and the work done there by Dr. Julia Dawkins as teacher-adviser on health education provides a good example of a successful project of this kind. Dr. Dawkins' aim was to give the schools something they could use. She began by touring the schools lecturing on the subject

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[4] *Health Education Journal*, March 1966.
[5] *Breaking Down the Barriers*, published by the Central Council for Health Education.

and running discussion groups. Then when she had decided exactly how the job ought to be tackled she began selecting teachers to take over. Once she had found the teachers it was necessary to train them. A series of evening meetings and a three-day course were instituted. Personal qualities of stability and freedom from prejudice were looked for and not only married people were selected—who knows more about the difficulties and frustrations of being single than someone who is single? Training was chiefly designed to help teachers to see and understand themselves and their own attitudes rather than give them factual information. Dr. Dawkins formed the view that teachers of English literature are particularly well-equipped to handle the subject because their teaching gives them so many openings into, and an insight into, 'personal relationships'. Back in 1913 Norah March held much the same view, but then the standard book to lead in with was *Little Women*, but now some schools use Stan Barstow's best-selling novel, *A Kind of Loving* to study relationships and attitudes. It should be added that a scientific treatment of some aspects of the subject is generally found to be helpful, and there are considerable advantages in a team approach.

Most LEAs tell parents about schemes of this kind when they start them because there are so many ways that they can help to make them work. (The protests that inevitably result, and the stories in the local Press, die down in the end.) In Oxford, parental involvement proceeds by three stages. There is a talk by the teacher-adviser to the parents of children being admitted to the infant schools. They are told that at some time during their children's primary education, sex will be introduced as a lesson topic. When these lessons begin, usually between the ages of 9-11 years, there is a second talk for parents to explain to them what to expect of their children during puberty. Finally there is a talk to parents when their children are at the beginning of the first year of secondary school.

In Dr. Dawkins' view the point at which children should first begin to learn about sex and the part that it will play in their lives is at about nine years old. At this age they are '. . . educational sponges, soaking up ideas and information. They are still closely orientated inwards towards the family and they have begun to ask questions—if they haven't actually asked they have begun to wonder how babies are born. Most important of all, as far as sex education is concerned, the emotional turmoil of puberty has not yet begun'. The idea of set lessons on sex for primary school children does not, however, fit in with a good deal of modern thought on how young children learn, and some educationists would prefer a less rigid approach.

Schools have been experimenting with a variety of approaches to the theme of 'education for personal relationships'. Formally this may amount to about six periods throughout the secondary school year; but in addition all kinds of informal approach have been developed, in the context, for example, of courses run by Youth Employment Service officials for the school leaver, at residential centres, and on courses run at adventure centres of all kinds. There is a growing consensus that personal relations are better dealt with as part of a broad range of what might be called the problems of maturity than high-lighted for special treatment.

Balanced Individuals

Notes on Sex Education, prepared by the London County Council, are founded on the view that the best approach is to emphasise respect and consideration for others, based on knowledge and sympathetic understanding and the need not to see people as objects for conquest or sources simply of physical gratification. Sexual intercourse, say the *Notes*, should never be seen as transient pleasure, but as a joyful consummation of close friendship, love and understanding which in marriage have time to grow and to deepen.[6] What is absolutely essential is that these things should be discussed in the right kind of way, in the context of the moral climate prevailing in our society.

It is improbable that all teachers would be effective in a health-maturity-personal relationships project for which a school must clearly find its most mature and well-balanced individuals. Teachers for the scheme operated by Gloucestershire were selected by a panel consisting of a psychiatrist, a representative of the National Marriage Guidance Council and a practising headmaster and headmistress. Among other details about themselves the candidates had to give 'an affirmation of the principles of personal relationships in marriage'. The alternative is either to hand pick teachers, as is done in Oxford, or to bring in outside 'experts' as part of a team approach.

In a number of areas, notably Berkshire and Sussex, the outside experts are education counsellors of the Marriage Guidance Council. They visit schools at the invitation of the head teacher and run discussion groups for the pupils. The purpose of these groups is not to provide 'facts of life' (although this is done if they are asked for) but to help the young people towards a deeper insight into the nature of relationships. Adolescence is a time when boys and girls have to adjust to unfamiliar emotions and drives. They have to adopt new patterns of behaviour in which human relationships play an increasing part, and they have to begin to appreciate the point of view of young people of the other sex. As far as the counsellor is concerned the object is neither to lay down dogmatic moral principles nor to deny the validity of such principles and create a moral vacuum. It is rather to help each member of the group to develop the capacity to make moral decisions. Said Terrence John, NMGC's Training Secretary, 'Education for personal relationships, which we call this work, is one of those phrases which, when you analyse it, is almost totally meaningless, but it is probably as good as any other title to describe the process of helping young people towards self-awareness, aiding them to come to terms with their own sexuality and towards establishing good relationships with their parents and their peers now and in the future.'

Education counsellors are selected with considerable care. They have first to be sponsored by a local Marriage Guidance Council, and then undergo a two-day selection procedure involving interviews, written tests, group work with case material and an interview with a psychologist. Only about half the applicants are eventually accepted for training.

The Marriage Guidance Council also runs training courses for teachers for those LEAs who approach them for such help. Usually this training takes the form of a three-day residential course, with the LEA

[6]Taken from *Notes on Sex Education*, published by the London County Council, 1964.

finding the centre, selecting the teachers and carrying out the general administration and MGC providing the tutors, organising and running the programme. The aim of such courses is to show the teachers involved an approach to the work—not train them in the job. The brevity of the specialised training it is possible to give teachers of necessity means they must do a good deal of work themselves. The indications are that the majority of colleges of education are equipping their students with sufficient basic information on this subject for them to be able to handle it in the schools. The results obtained from a questionnaire sent to all colleges in England and Wales (66 per cent responded)[7] revealed that about a third now have courses for their students intensive enough for them to be qualified (but not necessarily emotionally equipped) to give specialist instruction in schools. Most of the others appeared to provide enough of the basic facts for their students not to emerge at the end of three years totally ignorant on the subject.

Lack of Frankness

Despite all that is being done it is surprising that 56 per cent of the boys Schofield interviewed and 13 per cent of the girls said they had received no sex instruction of any kind in school.[8] Is this the true state of affairs? A possible explanation is that the teachers think they are giving sex education but the adolescents do not recognise it as such. Schofield seems to suggest this. 'Sex education', he says, 'when it occurred seemed to concentrate on biological and physiological matters and seemed to be unrelated to human affairs except when it was wholly concerned with putting across a particular moral point of view, which was often the case with girls'.

In a report of an health education project carried out in West Sussex the two organisers said the moral values they felt were needed in this kind of teaching were '. . . those of honesty, integrity, dignity, self-discipline and charity related to sexual matters as much as any other moral matter'.[9] Yet this does not go one quarter far enough for many people who would feel that a definite Christian viewpoint should be put. The clash comes over our conception of the teacher's duty; is it to impose his own moral standards on the children or to help them towards forming a sense of values and standards with which they can genuinely feel identified? Those who answer yes to the second part of the question believe that morality can be learned but not taught, that it is something that has to be absorbed gradually from the environment. A child, they would hold, acquires his code of moral values from many sources, from the intellectual challenge of his work, from the interplay of mind on mind in lessons and out-of-school activities, and from the teaching in many subjects, religious instruction, English literature, history, perhaps chief among them. Above all his code will come from his contact with persons, at home, in every-day life, and at school.

The people who have the greatest immediate influence will generally be those sympathetic to the young person's views, who show the greatest friendliness and understanding, who are seen to be sincere and accepted as having human weaknesses of their own. The way

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[7] Facts of Life for Teachers, J. N. Grieves. *New Society*, September 30, 1965.
[8] *The Sexual Behaviour of Young People*, Schofield *etal.*
[9] Sex Education—a Method. *Health Education Journal*, November 1963.

moral codes have evolved down the centuries can be examined so as to show how they have been constructed to safeguard society, and that where they have failed society has been weakened. Rose Hacker summed up our present situation very well in the new edition of her book *Telling the Teenagers*. 'If there is a trend towards a new morality', she wrote, 'it is towards greater honesty. It would seem to embody a search for ethical standards based upon personal conviction rather than on outward conformity to behaviour patterns laid down by those in authority. It is surely asking too much of young people to fashion a new morality for themselves. It is the duty of adults to discuss the changes in society and in its thinking in order to establish and uphold some of the enduring values of morality'.

The author discusses some current trends in the use of leisure and the contribution the education service can make to a more satisfying use of free time.

Education for Leisure

J. A. SIMPSON

Dangers and difficulties beset the concept education for leisure. In the first place, it may be translated into an emotive blur-phrase with which we can simply re-package any existing curriculum so that the same basic medicine, as with prescriptions like 'education for life', or 'for citizenship' or 'for democracy', can persist without much consideration of its effectiveness. A new rationale is found—a change in the vocabulary of educationists without, necessarily, much change in the practice of educators. As such it has serious contemporary rivals in 'education for maturity' or 'adjustment'.

The second danger is a little harder to define and arises from that curious kitchen-sink *narodnichestvo* which nowadays prompts many of us to suspect our own predilections as prim and bourgeois, and induces us to ascribe almost moral force to mass behaviour-patterns as revealed by sociological surveys, grounding an educational philosophy, almost, on consumer research. This has many merits and is a salutary check on such assumptions as that *paella* belongs to an ethically higher order of things than fish-fingers. If pushed too far, however, it can abolish any real dialogue in education for leisure, reducing it to the facilitation of mass trends which are often dictated by irresponsible interests.

Surely educationists ought to be able to assert personal values based on the notion of more and less fulfilling activities, or on that of enlarging people's range of experience and choice. They can still be alive to the limitations, for mass application in 1966, of leisure patterns that have prevailed among élite classes—of the sort portrayed with considerable continuity from Jane Austen or Charlotte Yonge to Alison Utley. It may not be without significance that so many of these pictures are by women or that a woman—the late Dr. Macalister Brew—was among the foremost apologists of an education for mass leisure based largely on the assumption that elite mores should be diffused.

The third danger lies in an over-simplification whereby education is called upon to solve a 'problem of leisure' which consists in the appearance or threat of large quantities of non-work time created by automation and hanging heavy on the recipients. There may not be such a problem, and if there is, it is by no means so easily defined. It is true that since 1860 the average industrial worker has gained 1,500 hours a year of non-work time, and at each stage of this increase some public concern has been expressed about the social and moral consequences.

Shortly after the 1914 war, for example, the International Labour Office studied the 'problem' set up by the eight-hour day type of

legislation and expressed concern at the possibilities of mass drunkenness, debauchery and ennui. These dire results do not seem to have followed, and none of the contemporary surveys today gives us a picture of people complaining that they have nothing to do—except for certain small categories of teenagers and pensioners. Overtime, the second job, the great increase in the married woman labour force, and the time necessarily given to academic and vocational education, may, in fact, have reduced the national annual quantity of leisure. And to fill it there is a vastly multiplied range of leisure activities brought by technology and affluence within the reach of the average citizen.

Educationists who plead the new problem of leisure as an urgent reason for the development of this or that in the curriculum cannot point to the horrors of blank time. Rather they are expressing, whether they are frank about it or not, their disappointment with the way ('trivial', 'escapist', 'stultifying', 'unconstructive') that people use their time. Anyone, of course, is entitled to make such judgements but if he is pressing for anything which involves the expenditure of our effort and resources he must convince us that some improvement in the use of leisure is necessary for specific aspects of the welfare and happiness of people individually and as a community. And he must indicate means whereby, in a free society, this improvement can be made—the sort of water from which, and the sort of setting in which, the horse will in fact drink. Otherwise we shall be no further ahead.

Widening Horizons

The present position seems to be that the schools and various establishments of further and higher education devote a considerable amount of their time to education which, whatever other purposes it also serves, should enrich leisure by widening horizons of interest and enjoyment, sharpening perception and discrimination, and leading towards that thing—is it a quality of mind or an accumulation of knowledge and skills?—which is known as 'cultivation'. The effects on mass leisure are, however, in the opinion of well-placed observers, disappointing. Some time ago, for example, Jack Longland suggested, at an NUT conference on popular culture, that the influence of thousands of hours in the schools given to the arts and crafts and to physical and cultural development was only very partially discernible in post-school leisure interests. It would, on the other hand, be a pity to be discouraged too soon. It is a matter of experience that there has been a small but steady increase in those who have been permanently won over to 'higher values' by the work of the schools, and this will have a cumulative effect if we are patient, although the Newsom Report has identified a substantial section of pupils among whom this kind of development is rare and unlikely. Is it possible to do more? If so how? On what social and ethical grounds is there any special urgency at present for making the attempt? It is not suggested that the following considerations provide answers but that they may help towards a clearer definition of the questions.

Studies of the nature of leisure do not offer unmixed encouragement to educators. In less industralised and specialised societies no very clear line is drawn between work and play or relaxation, and much of work is enveloped in ritual or in domestic informality. Until quite recently in our own type of society leisure, except as a period of recuperation from work, was the preserve of a minority. To think of

training for mass leisure would have been pointless, although the lack of such training became painfully clear during the unexpected period of enforced mass leisure at the time of the great industrial depression, when the sense of aimlessness was more noticeable perhaps than malnutrition. Leisure for most people, as a separate block of time of significant dimension, is a product of the tertiary stage of industrialisation. It seems to have led to some wide-spread change of attitude towards work—from a view of work as a desirable chief life-interest and as a moral end in itself to seeing it primarily as a means to personal life—the unavoidable sub-structure of leisure. A number of thinkers from the Greeks to Piaget have expressed the view, put concisely by Schiller, that 'only in play is man fully human' and they have recommended an educational strategy based on this. Until recently, however, the inescapable economic condition of mankind has provided a soil that is refractory for the germination of such an idea, except for a privileged leisured class. A more protestant ethic has, accordingly, prevailed in education. Has technological advance altered all this? If so it might seem that golden vistas of personal development for millions were opening up before the educators' eyes. Some of the early diagnosticians of the ultimate effects of industrialization thought so. Marx, Engels and Proudhon envisaged a future in which emancipated workers would devote themselves to public affairs, astronomy and general cultivation. Only in limited measure has this type of expectation been fulfilled and, in so far as we are able to judge, even in countries where there is encouragement to the point of pressure, response to the sort of provision made in palaces and parks of culture and recreation has been far from reassuring. The very nature of leisure (the word is derived from 'licere') implies that much of it will be self-organised or, by extension, satisfied through customer-purveyor relationships.

Social Change

It is perhaps only realistic to try and identify some of the needs of *homo conurbanus* which he seeks to assuage in leisure, particularly those which emerge from high-density living in the mid-sixties, and particularly those with which it might be thought, *prima facie*, education could help. Many of these needs have been so documented by academic studies, reputable surveys or reports like Albemarle and Newsom, that it is sufficient only to recall them briefly. Perhaps the most frequently mentioned is loneliness—the sense of isolation and lack of identity. It is odd that, as we become more densely populated, there is so much reference to the need for meaningful human contact, as opposed to the lonely togetherness of the crowded tube train or cinema. A good deal has been written about it, notably Riesman's *Lonely Crowd*. A study made here states flatly that 'Loneliness among all age groups is the disease at the heart of our honeycomb society. The number of lonely people in Britain has been rising over the past twenty years and is an alarming iceberg of social malaise in a country which becomes more impersonal as mobility grows'. Shifts in population, the break-up of the extended family, new housing, the re-siting of industry, mass and passive entertainment, are among factors that have steadily diminished that group life which is the soil of mental health, where people can be persons and not merely faceless consumers, producers, viewers, passengers—units in somebody else's social engineering. Some indication of this may be given by the

enhanced prestige of marriage and the nuclear family as the sole reality, the front door providing the only gateway from the anonymity of outside relationships into life as a real person. Yet we are assured that there are in-built psychological reasons why family life is bound to be an insufficient substitute for less emotionally charged groups. Allied to this and also to the increasing complexity, specialism, and professionalism, of modern life is a sense of impotence—often manifested as apathy—in influencing let alone controlling social environment, in finding a place for giving any significant service to individuals to the community.

New processes have tended to reduce, for many workers, including domestic workers, the demands which their job makes on personal skill, strength, technical mastery, initiative and creativity. This is true whatever classification—skilled, semi-skilled or unskilled, or even professional—is allocated to the job.

Leisure pursuits and interests have acquired much greater importance in the lives of many, and it is in these often, rather than in their work nowadays, that they seek to find status and identity. Technical progress has opened up to a broad mass of people the chance of a personal life in non-work time, and it has made available to them a profusion of desirable possessions and activities the mastery of which often demands considerable skill which they wish to learn. Few, however, translate their wish into fact and one clearly emerging problem of affluence is under-usage—the fact that so many people continue to mill round a restricted orbit in pursuits that make minimal demands on their personalities.

The sheer volume and intensity of advertisement—which seems to reflect some in-built need in our type of economy for demand to run somewhat ahead of expanding production—and, indeed, the rich profusion of entirely new materials and apparatus for personal life, constitute a formidable problem for many. Already consumer education has been identified as a valuable element in the schools and further education establishments. It is not entirely a matter of choosing between products. Admass pressures can lead to dependence on an endless and widening stream of things to buy as a solvent of all the needs, difficulties and frustrations of life, so that new-won leisure has to be lost again in an attempt to gain extra money—by extra paid work—a process which is likely to be self-defeating and can lead to uneasy industrial relations. For this reason the cultivation of inner or independent sources of satisfaction might be seen as having social importance.

Our society is increasingly ordered. A larger and larger area of our lives is removed from chance, from hazard, or capricious individualism. It is subjected to an order which is manifestly just, well-planned and benevolent—an order which, we cannot deny, we have ourselves democratically created. It shepherds us into our proper traffic lanes and places us in clearly appropriate categories in various types of school or job, mental hospitals, or university, from the municipal maternity ward to the municipal crematorium. It is all sensible and just and leaves little room for causes that could hallow any expressions of human aggressiveness in embattled solidarity against oppressors within or foes without. The international scene too, is increasingly subjected to the rule of law, or the balance of terror. It may not be without significance that the World Health Organisation has noted that countries with a high crime rate have a low mental illness rate. Undoubtedly, one of the real success

stories of our Youth Service has been the type of adventurous activity associated loosely with the name 'Outward Bound'; but it has a minority appeal and, indeed, it seems difficult to relate to the kind of life that most of us lead this strange world of orienteering, slalom, tods, cliff rescue, mountain rescue, sea rescue, cave rescue, sheep rescue, and so on.

A feature of our epoch to which it might be supposed education has a contribution to make is the intensified difficulty in communication between the elder and the young. Some of the factors at work have been sufficiently stressed—affluent emancipated youth, courted by the labour market, wooed by salesmen who build up teenage pursuits, fashions and language to something splendid and separate, the high point of life—salesmen who are irresponsibly indifferent to the fate of ex-teenagers. Less attention has been paid to another side of the picture—that among adults there is increased health, wealth and longevity. There is indeed a good deal of jealousy between the generations.

Educational Contribution

Whether or not it is susceptible of any educational alleviation there is undoubtedly some malaise arising from widespread changes that are taking place in people's scales of values, and there is much confusion about which forms of conduct and what personal qualities are worth while. It has been observed that in many sections of the community, at all levels, a certain moral and social giddiness has arisen from the disappearance of those clear standards and signposts which were, not so long ago, provided by religious faith or the behaviour ideals set by higher social classes. It is a question of course how far education can be the creator of an ideology or how far it must work within a datum in this report. The prevailing view seems to be that education should put people in the position of 'forging out their own values'. Much of the nature of personal life, of leisure, will depend upon the type of standards and values which predominate at any given time—upon the patterns of ideal behaviour, and this includes recreation and relaxation, that are considered to be desirable, whether the label is 'more refined', 'nobler', 'more with-it', or 'more fun'.

If this is the sort of area of social and educational leisure-need that we must consider, what prospects are there of making a serious contribution through the work of the schools and colleges, and later through voluntarily undertaken further education? The pabulum that we have provided for many years now—the liberal and social studies (humanities and sciences), the arts and crafts, the physical skills—represents a distilled tradition of wisdom and it has been constantly increased and refreshed as a result of recent thinking and discovery. The techniques for its presentation and assimilation have themselves become a science. The diet has in the past few decades been enlarged by the addition of means whereby suitable attitudes and dispositions may be fostered in the young—means which are inherent in the curriculum and not merely its by-product of social training and corporate life. In so far as there has been a failure to provide the answer to leisure problems one may reasonably ask why this wisdom and these attitudes have proved inadequate.

Undoubtedly beneath all the prize-day tributes paid to education for 'life', 'maturity', and so on, those elements in education predominate which assist in replenishing and increasing the nation's stock of knowledge and skill for self-maintenance in a competitive world, and

while one may question the relevance today of some of the elements of this knowledge and skill that are still highly regarded, it could scarcely be said that the time seems ripe for making education for leisure central rather than peripheral. But even in the fringe—and it is by no means a negligible fringe—a certain mixture of austerity, academicism and high culture tends to prevail—a legacy perhaps of Calvinism and a public educational system which for much of its history was inspired by the conception of civilising the masses *de haut en bas*. As a result a certain hierarchy of priority appears to operate with considerable force in educational circles, whereby esteem is given in descending order to vocational education (and this includes academic and liberal subjects leading to examinations), other work which could conceivably pay a career dividend (e.g. Spanish on economics voluntarily taken by an adult student) high culture (which pre-supposes some initial intellectual equipment), the creative arts, physical fitness, and lastly education for sheer diversions of an innocuous kind, those which are active and rural being placed higher than those which are passive and urban.

Leisure Surveys

The resulting mixture in education that bears on leisure, often contrasts sharply with what most surveys of mass leisure patterns indicate to be the facts in a mainly urban society. These surveys vary, but if one allows for some noticeable difference between those dealing with adults and those with youth, it would not be unjust to find some consensus along the following lines. Heading the list by far comes casual, informal, human intercourse—domestic and outside the home, and including all the ascents, plateaux and declines of courtship, love, friendship and family affections. After this obvious element pride of place goes to the mass media (mainly television and radio). Surprisingly, however, this place is almost shared by a group of active and creative utilitarian interests that centre round the home—adaptation, extension, decoration, embellishment, purchasing, planning, gardening, dress, cookery. These interests are heavily governed by commercial advertisement, have a strong note of social advancement—although the keynote is modernity rather than gentility—and depend largely upon the use of commercially produced materials, kits and tools that are rarely seen in the schools (foam, rubber, fibre-glass, small power-tools). Close behind comes active outdoor interests. These increasingly centre round the car and include car maintenance—but also the expeditions, trips, picnics, travels, and holidays whether by car or public transport and also active participation in sports, games, coursing, fishing, camping, skating, swimming, bowling, water pursuits—again very much affected by the latest forms of commercially advertised gear and dress. Recreational and social activities of a more structured kind follow—the dances, parties, meetings in clubs and pubs, visits to cinemas, spectatorship at games and other events. Reading books invariably occupies a surprisingly high place but almost none of the surveys gives any clue as to the content of reading, and it must be remembered that nowadays, for a majority of people, the word 'book' covers magazines and comics. These are the chief categories and they occupy at least twice as large a percentage as the next in order—hobbies such as collecting, crosswords, pets—and gambling. After that we have only fragmentary distribution and it is somewhere here that we find, variously placed, some reflection of our educational striving—the interest in nature, the less utilitarian crafts,

amateur drama and music-making, the theatre, concerts, and other forms of high culture including a maintained interest in liberal or social studies, or the active exercise of democratic citizen responsibilities. In general, as one of the surveyors, Brian Groombridge, points out 'Popular culture in Britain is a domestic culture centring on the home and garden and linked to the world outside by the car and TV.'

One might add that it is a culture dependent in large measure upon the commercial provision of commodities and facilities, and it is here too that one may discern in much educational thinking and practice a traditional suspicion or contempt which leaves these goods and facilities out of account. There are of course notable exceptions but there is often little disposition in educational practice to take cognizance of non-educational television programmes, of the significance in children's lives of pop discs, of the admass-induced conspicuous spending which is one of the notable mass pressures of our time and has been called 'the wall-to-wall dynamic', although, among the young, clothes predominate as the concrete symbol. Educational provision is slow to recognise the new rhythms of living that have appeared in the two-income family with its effect on the timing, tempo and content of leisure. The nourishing soup or pudding that needs careful preparation, the stitchcraft that lends itself to endurance and repair are, for many, as irrelevant as the concept of thrift in an age when the economy thrives on rapid, throwaway consumption and confident credit-buying. Nor is enough note taken of what appear to be, in the case of many people, something like in-built limitations. In one study of life on a council estate there was noted an almost universal aversion from serious music, to the point, apparently, of genuine physical pain. A similar sense of nausea in the presence of large arrays of books, as in a library, was noted by another. Most teachers of history have encountered a certain number of pupils for whom the past, in itself and in any shape or form, is nauseous.

The central difficulty about a programme of leisure education seems to be that as educationists we have not all in our hearts resolved a dilemma which is thrust upon us with increasing clarity as we try harder. We cling to the notion that everyone is capable of the highest (a highest about the nature of which we have little doubt), or at least capable of some stage on the road towards it, and that, at heart, they long for these heights and will be the better for their progress upwards, however painfully it has been made. It is as if mankind were strung out along the trail towards some golden west of attainment, some toiling manfully, some in breakdown postures, but all yearning onwards—'Culture or bust'. It is this sort of thinking which underlies many of the attempts to use popular culture, as the surveys show it to us, as a 'starting point'—something to educate *from* and not *for*. Education through the popular arts is not infrequently a disguised form of changing the popular arts by critical analysis—a process, in film, for example, of weaning away from *Goldfinger* to the works of Fellini. It is not surprising that the intrinsic difficulties of doing this restrict its effectiveness to a minority. And yet, as educators, are we not dedicated to some such process in respect of all our pupils, not merely some? Could we be content to educate a minority away from popular culture and the rest for the enjoyment of it? Is not any dualism of aim and standard repugnant to us? It is by no means a new problem. Years ago Matthew Arnold, as an educator, joined issue with Tolstoy when he wrote, 'At present I can contribute to nothing which raises me externally above

others, which separates me from them. I cannot any longer recognise any quality beyond the quality of man. I cannot seek a culture which separates me from men.' Tolstoy's words are surely moving, but can we take them less critically now than Arnold did?

But is this dilemma fundamental? Is it not being dissolved by the passage of time. Many readers of this article, like the writer, may admit that in their leisure they habitually enjoy some of the elements listed high in the surveys mentioned earlier. Enjoyment of some parts of both popular and high culture commonly co-exist today. We can surely educate for both if we are so minded, and the process will be effective in so far as we take popular culture seriously in all its facets.

Acquisition of Skills

There may be room, too, in educational establishments for greater awareness of the increasing wish of adults to use their leisure to better their situation in life in a new way—not through further vocational or academic learning that leads to advancement in, or change of career, but through the acquisition of skills and mores and possessions that confer social prestige. It would, perhaps, be a useful exercise for those who frame curricula in the schools to consider the change, in the last twenty years, in the programme of adult education classes provided by LEAs, and the increasing part played in it by classes in flower-arrangement, skiing, sub-aqua interests, stock market operations, fly-fishing, antique-buying, party-giving, the use of light in interior decoration, gastronomy and so on. The 'graceful living' motif is, also, increasingly represented in the Youth Service. Yet, although there are many exceptions, the leisure interests opened up by the schools are not usually presented in ways that associate them with this powerful tendency. Recently a sub-section of the Cultural Committee of the Council of Europe has identified a general trend in member countries as policies of *Education permanente*—life-long education based on the need, in a time of high-tempo social change, for regular refresher courses throughout life, as much in matters of personal and social, as in vocational life. Involved in this, explicitly, is the need in the schools for a basic education in these personal and social matters which takes cognizance of, and works in liaison with, what is being done in the post-school years.

Perhaps, in the long-run, one of the most fertile fields for developing education for leisure is indicated by the supreme place occupied in leisure-usage as we know it by human relationships and intercourse. Much can be done, and is done, as a preparation or effective personal life in this respect through well-established subjects of the curriculum, particularly English. In addition, the increasing use of group work in learning situations is likely to convey some knowledge of the mechanics and inherent benefits of group-life and of the attitudes and techniques which enable people to join, form and be valued and useful in groups in various ways and roles. On the other hand, to include this vast field in the curriculum in a more formal or direct way presents a formidable difficulty—one more of those difficulties in which the whole topic of leisure education abounds. Some of them have been sketchily outlined in this paper. Around them all lies a question which is not one for educationists as such. How far are we at present wise to place a particular stress in education upon preparation for leisure. It is a question that would lead us into economics.

An extensive inquiry into the teaching of drama in schools, youth clubs and colleges of education has been launched by HM Inspectorate at the request of Miss Jennie Lee, as Minister with responsibility for the Arts.

Drama Survey Begins

JOHN ALLEN

A national survey of educational drama is being carried out by HM Inspectors between September 1966 and Easter 1967. This survey is partly the outcome of an inquiry into children's theatre which was conducted by the Arts Council in 1965–6. Some of those concerned with the inquiry felt that the provision of 'live' theatre for children was a subject that should be considered in relation to the kind of work that children themselves are doing in school.

The present survey is planned to cover work in primary and secondary schools, among youth groups, and in colleges of education. It will be geographically selective; but it will attempt to cover all aspects of drama in these fields. Similar surveys are to be carried out in Wales and Scotland.

The survey will be the responsibility of HM Inspectors but when appropriate they will seek the collaboration of local authority inspectors, county drama inspectors, county drama advisers, youth organisers and others. The success of the survey will depend on the close collaboration of the teachers, leaders, and lecturers who will be willing to offer their work for close observation and detailed discussion. Many of the written submissions to the Arts Council's Inquiry that were especially relevant to educational drama will be followed up and it is hoped that anyone in touch with, or responsible for, work that merits observation or discussion will invite a visit.

The approach of those taking part in the survey will be, in the first instance, to observe. But observation and description will be followed, whenever possible, by an attempt to elucidate something of the theory on which each piece of work is based. It is hoped that the survey will thus reveal a generalised picture of school drama with indications of the strengths and weaknesses of the work and likely trends in the future. In particular the survey will attempt to establish the place of drama in schools, its contribution to education and its relationship to other subjects. Those familiar with primary school education will understand that it is often very difficult, and seldom perhaps, desirable to isolate drama from a number of other activities. Imaginative play, expressive work in movement, exercises in improvisation to develop the use of language, may all contain elements of drama even though the lessons may be more properly labelled, if labelled they must be, 'play', 'activities', 'physical education', 'English', or 'music'. It is hoped that the Survey may enlarge our understanding both of the intrinsic nature of the inquiry felt that the provision of 'live' theatre for children was a the various expressive and artistic activities, and of their relationship. It is difficult for a teacher to 'integrate' forms of creative expression of whose fundamental nature he or she may not be clearly aware.

This particular difficulty—that of identifying the nature of drama—throws up what is perhaps the first of the many aspects of the work on which it is hoped that the survey will throw some light. In nursery and infant schools considerable thought has been given to children's play in recent years, and it is of great importance that teachers should see a continuity between it and the developing use of drama in the classroom. Imaginative play appears to be a fairly late stage in the process by which a child begins to discover his own identity in his environment. The child is passing from the stage of learning by sensory-motor experience to the stage when the development of imagination and intelligence is enabling him to explore the known world, to create the symbols by which to do so, and to form abstract concepts. The child is acquiring the ability to think and to perceive on the basis of subjective experiences to which he is continually being submitted or submitting himself. It is impossible to watch a child at play without being impressed by the range of faculties that are involved. The play is intensely physical. The body is continually expressive. There is a constant flow of language. Many materials, objects, and artefacts are being handled, many of which serve a purpose other than that for which they were made. This is an aspect of the use of symbols that have already been mentioned. There is often a good deal of dressing up which leads to one of the most interesting aspects of this play—the manner in which children identify themselves with characters from the adult world, as well as with characters from books, stories, and their own private mythology.

If it is a spontaneous and even obsessive need with the youngest children, does it become a less valid activity as children grow older? If we assume that it does not, then it must follow that to maintain its validity, the nature of dramatic expression will change. What is the nature of these changes? If drama is composed of various elements such as the mangement of the body and the voice, the power to invent, the ability to use the intelligence to comment select, control, how do we develop these faculties in a primary or secondary school? Most people will probably agree that if drama has any validity at all, it should make a positive contribution to developing a child's imaginative powers, but is that all?

If drama is held to be a subject or activity significant in its own right then we have to consider whether all teachers of music, physical education, art and English should not have some acquaintance with educational drama in the course of their training. We are also faced with the problem of the education and preparation of the specialist teacher. This is one of the reasons why the survey is covering both colleges of education and the specialist colleges of speech and drama. The preparation of teachers can only be done confidently when there is some reasonably accepted answer to the questions that have been asked here.

Many of these questions will of course be extremely difficult to answer and the occasion of the Survey will be by no means the first time they have been asked. But we have an opportunity to ask them nationally and we have the collaboration of many different people in attempting to find answers. The outcome of the Survey cannot be a blueprint for the immediate future. But it may be a valuable stage in clarification.

Three American Developments

Three aspects of US education are examined by visiting British educationists. Dr. K. Lovell of Leeds University examined the use of team teaching methods in US high schools. Mr. H. G. Macintosh, of the Associated Examining Board, discussed objective examinations with American administrators. Wynne Lloyd, Chief Inspector for Wales, studied the introduction of economics as a curriculum subject in US elementary schools.

Team Teaching

K. LOVELL

The term 'team teaching' has been defined in a number of ways, but I think it may broadly be described as *a form of teaching organisation in which two or more teachers have the responsibility, working together, for all the teaching of a given group of pupils in some specified area of the curriculum.* Readers who are familiar with the relevant American literature will recognise that Shaplin's definition was in rather similar terms.*

However, it must be stressed that team teaching is a generic term; it embraces a wide variety of organisational patterns which vary from school to school. In my experience it often involves large class teaching with groups of up to 120 pupils, the teaching of medium size classes of around twenty-five, seminars containing anything from seven to twenty pupils, and periods of independent study. In addition, there are the periods in language and science laboratories, and in workshops etc., as appropriate.

Members of the team are responsible for planning, executing and evaluating the work which they and their pupils undertake. In the actual teaching situation the period of large class instruction may be taken by one teacher or perhaps two, although the medium size classes and the seminars are invariably conducted by just one member of the team. Wide as the term 'team teaching' may be, it is true to say that it would exclude all those forms of teacher collaboration in which, say, two teachers trade off, each taking one part of the work for both of their classes, for in these circumstances each retains responsibility for his own part of the work and joint planning and evaluation do not usually occur.

Forms of Organisation

Two of the senior high schools I visited were given over wholly to team teaching except in those grades where the number of pupils opting for a particular elective subject was small. These schools, both opened within the last seven years, were purpose-built. In the first, the school

*See *Team Teaching* edited by Judson T. Shaplin and Henry F. Olds, Jr. (New York 1964).

day is divided into fifteen periods of around 20 minutes each. These periods can be combined into 40-, 60-, 80-minute or longer time blocks for the teaching of large and medium sized groups, for seminars and for independent study. By this means the number of scheduling combinations makes it feasible to allow a great variety of pupil options. The overall timetable is worked out by computer, and a 'print out' of each individual timetable made.

Large class teaching is given in one area which seats more than 300, and in two areas each of which accommodates over 100 pupils. Moreover, movable walls permit the three areas to be put together to sit nearly 600 pupils altogether. Each area has separate sound systems for simultaneous audio-visual presentations. In addition to the library which also contains study carvels, there is a viewing and listening room equipped with film strip and slide viewers, motion picture projectors, tape recorders, and further visual equipment for individual and group use. There are other flexible teaching areas of various sizes, some with folding partitions to provide spaces for classes of from five to seventy pupils; also small seminar rooms, and, of course, language and science laboratory areas, together with areas for art and craft, and home economics.

The teams themselves are rather large and members meet daily. When subject teams meet, members naturally discuss content of lessons and methods. But there are also inter-disciplinary meetings where the discussions are about particular children and other matters of common interest. For example, the writer attended one such inter-disciplinary meeting in which there was a very worthwhile discussion of the results of a verbal reasoning test recently given to the whole of the 10th grade pupils, and of the overall scholastic progress of four particular pupils.

In the second of the schools whose organisation is given over wholly to team work, pupils are divided in three broad groups—able, average and slow—for English, mathematics, science and history, although the grouping involves setting rather than streaming. Outside these subjects there is little or no grouping by ability. School begins at 8 am and from 8.20 am to 3 pm the day is divided into 20-minute modules so that here too a very complex timetable can be arranged to accommodate pupils' choice of subjects. Once again the timetabling is carried out by computer. There are twenty teaching teams.

All teaching is carried out in various combinations of four phases: large class instruction, seminars, learning laboratories and individual study. Learning laboratories are in operation in business education, English, history and mathematics. Each is staffed by teachers and accommodates from thirty to forty pupils seated at study carvels (science and foreign language laboratories are additional). In these there are the pupils who opt to do independent study in them as well as those timetabled to be there. In the learning laboratory each pupil *has* to complete a unit of work. He then has the choice of going on to the next unit; carrying out project work reading further etc.; or initiating, on his own, some further related study. When the pupils are not working in groups they are (except for some five per cent who have behaviour problems) allowed to work independently in the library, a science laboratory or any of the other laboratories, art room etc. grade nine pupils may have up to twenty per cent of the day spent in independent study and grade twelve pupils up to thirty per cent, while the abler pupils tend to have more unscheduled time than the slower learners. But there are many exceptions.

This school makes great efforts to get pupils to direct their own learning and they are given many opportunities for making their own decisions. For example, in physics in grade eleven, there are two large class lectures per week each class containing about 80 pupils. In addition, all pupils must attend the learning laboratory and seminar each week. But if a pupil gets all he needs in the large class instruction and in independent study, he need not in the physics laboratory work the experiments set on a particular piece of work covered in the large class. Instead of working the experiments on, say, heat he can experiment in, say, light. The physics laboratory is open so that although all those taking physics have to attend for a minimum of 200 minutes per week, some pupils come for up to 400 minutes per week.

Many of the schools in the USA which employ team teaching use it in the teaching of certain areas of the curriculum or with particular year or ability groups. One of the senior high schools visited had its pupils divided into three broad groupings—backward, average and able—although the 'tracking' corresponds more to the British practice of setting than to streaming. This is a very large school and during the year 1965-66 three teaching teams were at work with the able pupils, twenty-seven with the average pupils, and seven with the backward. The teams occurred mainly in social studies, English and music. There were none in mathematics. The remainder of the school, which included the great majority of the pupils, was taught by means of a traditional organisation.

The teams employ a three-phase programme. There are periods of large class teaching, seminars, and periods of independent study. The times in which a specific team operates is 'blocked off' so that the time spent in large class teaching, seminars and independent study is very flexible, although each individual team timetable has to be studied to see the extent of the flexibility. No times were set aside for regular team meetings, but team members consulted as often as they liked. This is easy when members share the same office.

One team observed at work consisted of a man and woman responsible for a joint English/history approach with backward pupils in grade eleven. The group of 45 pupils met for ninety minutes daily and the pupils could be rearranged in any way the team decided. The group could be taught as a whole; each teacher could take a group of, say, ten pupils and the remainder sent to study-halls for independent work; or individual pupils could be seen in the teachers' rooms and the remainder allowed to work independently.

In another instance three teachers formed a team to deal with a course covering social, economic and historical problems. The pupils were drawn from average and able groups in grade eleven and there was a daily meeting of fifty minutes. A typical programme appeared to be: Day one, large class teaching with the whole of the 90 present; Day two, discussion in three groups of 15 with 45 on independent study; day three, the other three groups of 15 in discussion with 45 on independent study; day four, groups of 30 may meet for purposes of induction and generalisation; day five, individual pupils can be seen in teacher offices with the remainder on independent study, or the programme can revert to day one.

A third example involved one man and one woman in an English team for average groups in grade twelve. A group of 125 pupils met for 55 minutes on three days a week. In addition, all pupils met one or

other of the teachers in groups of about seven once per week for discussion. Furthermore, pupils came to see the team members individually for consultation as the pupils wished or as the team required.

Team teaching invariably involves a good deal of independent study on the part of the pupils. It is because of this that time is made available for team members to take seminars. Many people think that this time comes from the fact that one teacher can take a group of, say, 120 pupils in large class instruction. But in my experience it is the flexibility between the teaching periods and independent study which makes time for seminars available.

The pupils in a junior high school correspond more closely in age to pupils in British secondary schools who leave at 15. In one such school which was visited there was a further variation in team organisation. There was little teaching in large groups, most of the class teaching being done in groups of 25 to 30. Less time was spent in seminars, but about twenty per cent of the time was allocated for independent study. The school has taken great care to see that the teachers know where each child is during independent study periods. Pupils have the choice of library, a resource centre for most subjects, an audio-visual centre, and a language laboratory or one of five science laboratories. A pupil decides each day how he will spend his independent study time the following day, and his IBM card, appropriately punched, is sent to the data processing centre. Each teacher receives daily from the centre a list of pupils he may expect each day for consultation; while certain teachers have the responsibility for the general oversight of 24 pupils and these teachers receive, each day, a list of choices made for each of the pupils for which he is responsible. A close watch is thus kept on the way in which each pupil spends his time in independent study. While care is taken to see that the pupils spend their time profitably, it must be stressed that pupils have many opportunities for choosing specific units of work in literature, social studies and science and for choosing activities within a unit of work, e.g. choosing a particular novel to study from a selection.

Some Conclusions

Much time was spent talking to principals and teachers, and as much time as possible observing pupils at work. From these discussions and observations some conclusions could be drawn about the value of team teaching looked at from the British point of view.

What is the purpose of team teaching? Many answers have been given to this question. In my view it can serve three purposes, and these are given in what is regarded as an increasing order of importance. First, it tends to make the teacher re-think many of the basic issues in respect of curriculum and method, and there is a tendency to take more care over lesson preparation since team members tend to live in a 'fish bowl'. There is, of course, no reason why such re-thinking and improved preparation should not take place in a more traditional organisation. Second, there is a consensus of opinion that team teaching aids the further training of young teachers, for in the usual forms of school organisation they are left more on their own. Third, team teaching facilitates the building of a timetable which gives pupils more opportunities to follow their own interests, engage in small group discussion, and assume greater responsibility for their own direction

and progress. Many Americans argue that knowledge is rapidly expanding, facts can soon be out of date, and that it is vital that pupils should learn how to find out for themselves and get the habit and desire to do so, especially as there is no certainty concerning the requirements for life and work twenty-five years from now due to rapid technological changes. It is not implied that educational goals consonant with these views cannot be reached within a more traditional organisation, but team teaching may facilitate the attainment of such goals. At the same time, it must be pointed out that one of the principals said that there would be an extension of independent study in his school with or without team teaching in order to further the aims indicated above.

There is clear evidence that in 1966 there were many changes in the organisation of team teaching compared with that of earlier years and described in the literature. The notion of a master teacher at the head of a hierarchical organisation does not seem to have worked very well, as he tended to be too far removed from the day-to-day routine and it was bad for team morale. Team members are now often of equal status and receive no merit pay. But some teams do have a senior teacher in charge who receives extra payment; when this is so it is necessary for him to take his full share of all aspects of the team's work for things to run smoothly. In the earlier days, too, there was some suggestion that team teaching might save staff and save money, but all experience to date shows that there is no such saving. Indeed, team teaching may be a little more expensive than a more traditional organisation.

There is no doubt that individual teacher competence is the keystone in team teaching as in any other form of organisation. Teachers are needed who can really teach large classes, conduct seminars, provide potential learning situations in laboratories and workshops, and maintain good relationships with children. *No amount of clever manipulation of time and space by computer, no flexibility in teaching arrangements, can make up for an incompetent teacher.*

If a school considers attempting some form of team teaching, it is necessary for members of staff to think out their objectives, the means whereby they hope to realise these, and how they will evaluate their efforts. For average and abler pupils, team teaching may be introduced by subject; for the less able it may be by joint subjects or even by theme or project. The lessons for the large groups must be very well prepared and presented; if not, it is better to omit this phase of the work. Some of the large group lessons observed were very good, some not so good. It is important, too, that teachers should be able to conduct seminars of 8-12 pupils. In conversation with the pupils in the schools visited, the writer found them very perceptive and they were able to point out the strengths and weaknesses of team teaching. At times they were critical of large group instruction because of the failure in preparation and presentation, but generally the seminars were greatly valued. However, pupils must be clearly informed of the purpose of team teaching and flexible arrangements, for without the necessary understanding such arrangements can be for them a 'mad world of activity'.

There is no clear agreement as to the best size for a team nor on the frequency with which it should meet. Teams were observed in action whose size varied from two to eight teachers. But teachers were agreed that more must be done in teacher training programmes to give

students better insights into the working of small groups and more experience in conducting seminars. Doubt was expressed about the wisdom of having teachers with age differences of 25 years or more in the same team. In this situation the older teachers tend to find the pace of the younger teachers too fast. There are great doubts in my own mind about the value of large group teaching in mathematics when the pupils are heterogeneous in respect of performance. And when all is done, there are some teachers, and a minority of pupils, who seem unsuited to team teaching. The majority of pupils spoken to preferred team teaching and flexible teaching arrangements to a more traditional organisation, although there were also pupils who did not. All teachers and pupils agreed, however, that there must be, for pupils who are unable to accept responsibility for themselves, some foolproof means of knowing where they are in independent study periods.

British teachers might like to consider whether team teaching could serve a useful purpose in the schools in which they teach. It is no panacea; but it may provide a form of teaching organisation that will help them to attain certain educational goals. In the schools visited little use was being made of programmed instruction, educational TV or closed circuit TV. But in the experimental work to be initiated by the Nuffield Resources for Learning Project, it seems likely that these educational technologies will be tried out in conjunction with some form of team teaching organisation.

Note

A full report of Doctor Lovell's visit is to be published by the University of Leeds Institute of Education.

Objective Examinations

H. G. MACINTOSH

There seem to me to be two distinct points of view held by those engaged in the general field of education measurement in the United States at the present time; or perhaps it would be more accurate to describe them as two different ways of looking at the same problem. One approach appears to emphasise the psychometric and the other the psychological aspects of the problem, but they interact and indeed interlock at many points.

The first of the two broad approaches is represented by the Educational Testing Service, the College Board and in some part by the American College Testing program. It would also include the main commercial firms such as Harcourt Brace, the Psychological Corporation, Science Research Associates, Houghton Mifflin and the California Test Bureau in respect of the majority of their work. They are concerned primarily with the construction of large-scale tests to measure specific achievements, aptitudes and traits, and the tests are used as

both reflectors and predictors: by which is meant that the valid test (under controlled conditions) can both reflect the taker's high school or previous performance and predict his likely success in his future college courses or in some profession or occupation. Well defined techniques for test construction, item analysis and validation have been devised over the course of years for such tests and a great deal of information is available concerning them. To call this group traditional would be in a sense unfair if by traditional one implies no forward progress. There is a constant search for new kinds of questions to ask in order to test the application of the candidate's knowledge rather than his mere ability to recall it, or to test more effectively whatever the particular test is designed to do. New statistical treatments of results, new approaches to item analysis and the validation of tests are constantly being tried out and old methods refined. I was particularly impressed by the absence of any sense of complacency. Nevertheless, it is perhaps fair to say that there is a general mould in which their work has become set, although far from ossified.

The second approach is represented by individuals rather than organisations. They are concerned that qualifications for admission to any institution should not be measured purely in terms of general or specific educational achievements, but should take account of a person's general interests, his personality, his leadership potential as evidenced by his school performance, his social awareness and so on. This second group is deeply concerned with the need to state, and in some cases to re-state, the fundamental objectives in education and to endeavour to ascertain the extent to which these objectives are susceptible to measurement. Thus it is hoped to discover where the community as a whole falls short, and more immediately where any particular section of it has fallen short, in order that remedial action may take place. This definition of objectives dominates the whole education measurement scene in the United States in marked contrast to the United Kingdom. But whereas the first group has concerned itself mainly with the definition of general objectives in particular subject areas and has then endeavoured to devise measuring tests free from syllabus content so as to ensure that these objectives are measured as well as possible, the second group has reacted rather differently. It includes those who passionately believe that America will shortly grind to a spiritual and intellectual halt unless great individuals emerge who are not afraid to face hostility and to be ostracised. This has stimulated a desire to find out what makes such men what they are. Can one, in other words, identify the qualities that make up an original and creative individual and, if one is able to do so, can one devise measuring instruments to test such qualities and subsequently to increase them?

Some of the motives behind the desire to explore and measure in these fields are not educational. They include both social and political motives. For example, there is the problem of the culturally underprivileged groups in the United States and the desire on the one hand to try and devise culture-free tests which will not put these groups at a disadvantage and the desire on the other hand to try and rationalise current attitudes to such social problems. Another example arises from the size of the country and the diversity of teaching techniques and syllabus content which makes a single national test on many specific subjects virtually impossible. The search by both groups has, therefore, been for syllabus-free examinations which do justice and are

valid whatever the particular social and school environment. Coupled with this is the dislike of the possibility of national tests which is in contradiction with the need to emphasise the unity of the American people. It is felt that this dilemma can best be tackled and best justify the increasing use of vast sums of Federal money by making an analysis of national educational objectives which on the one hand may reflect attitudes and on the other hand be used to improve them. In subject areas such an analysis helps one to ask fundamental questions; e.g. what constitutes a good geographer and how can one measure the characteristics or qualities that we think make up such a one? We are still groping for appropriate measuring instruments to do this and other similar tasks, and indeed in many fields the objectives remain undefined or no rationale of them exists or has been attempted.

Examinations

In any immediate consideration of the suitability of American testing methods and techniques to Britain, the second group must inevitably make a less immediate impact, although its ideas are stimulating and may have indirect influence. Before, however, discussing the application of these ideas and of the types of educational measuring instruments to Great Britain, there are two important general points that need to be made first.

It is vital to any consideration of the American educational scene to recognise that the Americans regard the search for, and definition of, objectives in all fields of human activity as being of paramount importance. This is particularly true of the curriculum field. In all subject areas, committees are defining and re-stating the fundamental objectives that they consider should be reflected in the area concerned. The Americans do what they do because they believe that only in this way—by stating objectives and trying to achieve them—can progress be made. It follows, therefore, that the best test or examination is the one which best tests the objectives and enables the examinee to show his knowledge and his ability to apply it. To put this in another way, what is important is curriculum evaluation and not whether the examination is objective or an essay type. The syllabuses (for unlike the United States we live in a syllabus-dominated examination system) and the examination can be looked at to see how far they reflect these objectives. The Toronto Conference on Curriculum Evaluation, and the promised publication from the Schools Council on the same subject, indicate that this kind of a closer look is being introduced. Such a change is much needed.

I was immensely impressed during my short stay by the American attitude to the spread of detailed information regarding tests and testing procedures. They regard it as essential that the greatest possible amount of statistical and interpretative information should be given to the test users and takers, not only to the school or college but also to the individual student. Considerable guidance is also given in the use of the material thus presented.

Objective Testing

Before any consideration is given to the practical problems involved in introducing objective examinations into Britain, the question of their advantages must first be considered. The supposed defects and advantages of objective and essay examinations have frequently been rehearsed.

It is worth while noting that by making this kind of comparison one is likely to become involved in the 'Essay versus Objective' controversy which ought to be avoided. It ought instead to be replaced by discussion of the question—what kind of test best measures what one wants to measure ? The fact that in the United Kingdom we are tied traditionally to syllabus-bound examinations means that the examination necessarily demands a high factual knowledge of the syllabus content to score high marks. Thus any examination which can quickly, easily and reliably test factual knowledge would be invaluable in Britain, particularly at the Ordinary level of the General Certificate of Education and in Mode 1 of the Certificate of Secondary Education. This the objective examination can do. It should not, however, be thought that factual knowledge is all that it can test. The marshalling of facts and their application to situations to provide a reasoned solution to a problem is capable of being tested by means of objective questions. The most commonly used types of completely objective test items (or questions) are multiple choice, true/false, matching and classification—but there are a great many more. Full details of these are set out in, for example, *Specimen Objective Test Items* by J. R. Gerberich, Longman 1956, and *Writing the Test Item* by Robert L. Ebel, a chapter in *Educational Measurement*, edited by E. F. Lindquist, American Council on Education, 1951. It should be emphasised that objective items can and do embody diagrams, pictures, cartoons and statistical tables.

It should also be stressed that the setting of such questions requires greater skill on the part of the examiner and that the chain of reasoning which led to the student's answer is not of course visible on the examination paper. In addition to being able to test important qualities which one looks for in the United Kingdom examinations, these objective examinations by their different approach can provide interest and variety in the examination structure which can all too easily lose its stimulus, thus failing to provide a challenge which is both exciting and fair. Apart from the educational aspects, objective examinations, because of the speed and reliability with which they can be marked, have obvious administrative advantages.

Experience has convinced me that the objective examination provides as good a test as any secondary school achievement examination at present in use in Britain, except in fields where creativity or original expression of ideas is required in a form longer than is possible in a sentence or short paragraph. They are also unsuitable where special needs of an oral or practical character may be involved. They would thus be admirably suited for many subjects at Ordinary level and as an element in the Advanced level examinations, although not for the special papers. I would feel that in the United Kingdom their most common use would be as part of an examination in combination either with an essay paper or an oral test or practical examination and this would have the additional effect of minimising the backwash effect worries so many people.

The immediate practical consideration, however, is what are the problems which will be encountered in, and the best ways of, introducing into Britain the type of objective achievement examination commonly used in the United States. I will confine myself here specifically to the achievement examination and not to the verbal and mathematical aptitude tests, nor to all the other kinds of personality, intelligence and psychological tests which are also used extensively there. These, for the General Certificate Boards, have little immediate applicability, although

there are possibilities as far as verbal aptitude is concerned as part of the English paper. It will already have been noted that there is an indiscriminate interchangeable use of the words 'test' and 'examination' in this paper. This is partly a reflection of the fact that the terms tend to be used indiscriminately both here and in the United States. Whereas in UK, by habit, we refer to psychological *tests* and to, say, mathematics *examinations*, in USA the word test covers both and the adjective achievement, aptitude, etc., is usually added.

Practical Problems

The main obstacle to overcome in the introduction of objective examinations is the prevailing attitude of mind to examination in general in this country. We have become so indoctrinated with the current system of essay examinations and the general methods used that our whole approach to the objective examination is coloured by what are really irrelevant considerations. It shows itself in such things as the unsupported presumption that guessing plays too large a part in objective examinations. It shows itself also in less immediate apparant ways. All examination papers in the United Kingdom are public property after they have been taken by the candidate. The first thing that I did when writing to Educational Testing Service and other bodies in the United States was to ask them for copies of past examination papers without appreciating that these are, of course, not available in the same way as they are here, since they are normally used for several examinations. This is an illustration of how our approach will need to be changed and new and detailed instructions will need to be given to teachers, candidates and all concerned with examination administration. Basically, specific criticisms can only be effectively answered by the setting of objective examinations and their discussions with those involved, mainly teachers, to see whether the criticisms have any foundation or not. To change what one might call the whole examination ethos will take time but here again experimentation and the increased use of new techniques will be the main way of achieving such a change.

The points raised in the preceding paragraph about the answering of criticisms by actual examinations underlines the vital importance of setting good objective examinations. It must therefore be emphasised that the first objective examinations must be of the highest quality and the result of most careful preliminary preparations so that they do not afford opportunity to decry objective examinations as a whole. Since in objective examinations the setting is all, the problem in essence is the finding and training of good item (question) writers. American experience would suggest that one either has the ability to write good items or not, and that this quality or skill can be detected quite easily. After that, constant practice at writing items is needed. What is required, therefore, in this country is help in the training and identifying of suitable people who must by practice develop their expertise. While a great deal can be and must be done by reading the many available booklets and books on test construction and test items and by such other methods as the Educational Testing Service's film strips and the Iowa correspondence courses, there would seem initially to be really only two main ways of tackling this problem which would provide an adequate platform on which to build. These are either sending people to the United States to attend courses (workshops) in test construction or asking experts from the United States to come to Britain to conduct such a workshop or workshops. The ideal solution would be a combination of both.

Professor Bloom, of the University of Chicago, suggested to me that we should in Britain build up a national pool of items on the lines carried out at his suggestion in India. While this is a very useful idea it would be unlikely to work very well in practice in Britain as it presupposes the existence of a national examining board. Where it would be invaluable would be in making available to the teachers examples of items which they could use with their students and which would help to improve their own skills. An educational publisher might well consider the provision of books containing specimen items and chapters on the problems of test construction and suggestions as to how to construct them. Before, however, one can have a pool of items one must have item writers and this is the first consideration. The main body of experience, particularly in examinations for those above the age of sixteen, lies at present across the Atlantic and it is there that we must look for much of our assistance initially.

Lack of the appropriate expertise is not only confined to the item writing field, there is also a lack on the statistical side. A third problem which requires very careful consideration is the need to provide adequate instruction to candidates and this could be overcome by the provision of practice questions.

Further Action

If one assumes that these problems can be overcome, the next question to consider is in what ways can objective examinations be introduced. Here the inevitable tug will occur between the imperative need to do the preliminary work properly and the desire to introduce the examinations quickly. There are three main ways in which such examinations could be introduced.

Firstly, a school might request an objective examination to be set under a Mode 2 or 3 approach at Ordinary level since the GCE Boards are now free to accept such syllabuses. The Board must therefore be in a position to provide advice on the setting of such examinations and to provide the relevant statistical services if required. Boards would also be able to suggest to schools approaching them that they might consider an objective examination.

Secondly, there is the possible use of an objective common-core test for providing evidence on comparability, or its lack, as between the examination papers of different Boards. This was the subject of a paper some years ago by the University of London Board and has had its possibilities demonstrated by the recent proposals of Dr Miller of the same Board to conduct such an experiment in 'A' Level Physics next year. This procedure could be extended with advantage, and Boards in due course might be prepared to consider having common objective elements as an integral part of the papers, and not merely as an experimental addition.

Thirdly, on the initiative of individual boards, objective examinations could be introduced in two ways. The Board could parallel one of its existing examinations in say, Ordinary level European History, with an objective version and ask a number of schools to take both these examinations and compare the performance with each other and with the school ranking list. It cannot be too strongly emphasised that the preparation of this objective examination must be extremely thorough. The evidence provided from this examination would then be used for checking the suitability of the items

used and the result would be the preparation of a properly tested objective examination lasting for say, one hour, and embodying some sixty to eighty items. On the basis of this evidence, decisions could then be taken as to its introduction into the Board's examination, initially perhaps as an element of one hour in a two-and-a-half-hour paper. At Advanced level also the Board could provide examinations containing a mixture of objective and essay questions. The Advanced Placement Examination could form the model here and in view of comments made at the recent inter-board conference at Oxford, Advanced Level economics might be a suitable subject to start with.

An Examining Board could try out an appropriate American examination in an English school. This presents a number of obvious problems, but the value of familiarising schools with this type of examination, obtaining the reaction of both teachers and pupils and of providing some comparison between the examination performance and the teachers' estimated rank order in the subject would appear to make it worth consideration.

The report upon which this article is based, together with its recommendations was discussed by the Education Committee of the Associated Examining Board at one of its meetings in October. It was recognised that proposals for the development of objective tests could not be divorced from wider considerations of research as a whole, data processing and finance, but space does not permit these to be discussed here. In the specific field of test development, approval was given for the Board to undertake the construction of objective tests in O-level history and mathematics and A-level economics and a science subject; together with an investigation as to their use in combination with other techniques for O-level English. It is hoped that at least one of these projects will be carried out in conjunction with other GCE Boards. While every advantage will be taken of available publications and individual assistance from experts, the method to be employed will be that of the workshop as mentioned in the article. It is envisaged that the objective tests when constructed will form a part of the examination and will be taken in conjunction with a more traditional paper. The basic aim of the programme is to make available to the Board's advisory committees, properly constructed pre-tested objective batteries of questions. Upon this basis informed decisions can be taken about the ways in which they can subsequently be best used.

'Literate on Economics'

WYNNE LLOYD

Discussions on the content of school education in this country, as in others, have long been concerned with the proper balance between the necessity for covering in some degree the organised fields of scholarly knowledge and for meeting the personal and social needs of the pupils.

As the exponents of the needs philosophy gained in influence so too did the concern of academic scholars grow for adequate attention to be given their particular subject disciplines.

In the United States the attention given to the systematic study of human development, learning theory and educational sociology has shifted the emphasis in planning school curricula. In particular the school of thought represented by Jerome S. Brunner of Harvard who in the *Process of Education*, published in 1960, initiated the chapter on 'Readiness for Learning' with the hypothesis that 'any subject can be taught effectively in some intellectually honest form to any child at any stage of development' is having far-reaching results. Amongst others it has led to the development of projects to study different areas of the school curriculum in which academic subject specialists are deeply involved. Some have been concerned broadly with the curriculum as a whole or with certain fields within it. Others deal with existing subject areas or with subject areas either new to the schools or in new forms or associations.

In mathematics, physics, chemistry and biology, much has been accomplished but in the humanities and social sciences progress has been slower. The developmental work in these fields in progress in the United States and supported by Foundation and Federal funds is extensive in location, range and complexity. One of the most unusual for us is in economics.

The organic approach to the experiment in teaching economics in elementary schools was pioneered by Lawrence Senesh of Purdue University, amongst others. It was based on the hypothesis that 'since children at every grade level with proper motivation became excited about the abstract ideas underlying their experiences, these ideas can be presented to reflect the fundamental idea relationships of economic knowledge'.

The project named after the town where it was developed, Elkhart Indiana, has now after four years' work been made available generally for the first grade and the materials 'include a set of fourteen records, with specially appealing narrations, music and sound effects; plus texts that move from child oriented pictures only, to simple reading exercises'. Activity books give the pupil a thorough range of related exercises and the teacher's guide includes scripts of each recorded lesson plus 'a Resource Guide that carries a wealth of related activities, readings, games and unit places.'

Senesh and his colleagues at Purdue saw the study of economics as a dynamic pursuit involving far more than concepts of finance and banking and not a field of study apart from all the fields that could be included under the title social studies.

'Supply and Demand; More Schools Teach Economics to Children', was the heading of a Roland Buel column in the *Wall Street Journal* of the 2nd June, this year, which reported that 'some 1,500,000 students in more than 4,500 elementary schools are tackling such concepts as risk, the circulation of money and economic scarcity' this year. It refers to the Senesh approach and the studies at Princeton which had found that basic views often misguided about the business world were well established by the seventh grader i.e. by the thirteen-year-old. In describing briefly activity approaches such as model companies and

banks it concludes that 'some teachers benefit too' with a reference to the Alhambra, California second-grade teacher who had to 'bone-up a bit to guide her class'.

Curriculum Development

My first direct introduction to developmental work in this curriculum area was at the Atlanta/Fulton Instructional Services Centre where two co-ordinators helped to get me adjusted to the work of their centre for the two schools systems, their links with University, state and national bodies and more particularly with the activities of the Joint Council on Economic Education (founded in 1948): in particular, the work done by this Council in preparing two teachers' guides, the one on economic ideas and concepts and the second on suggestions for relating these concepts to existing curricula, so that classroom application became possible.

At San Francisco State College, I met Hilda Taba, who is leading a team aimed at developing social studies material for the elementary school child based on studies of children's thinking. The central objective of the project is to develop a curriculum centred on 'basic ideas and strategies designed for fostering the needed cognitive skills,' and it involved studies of thinking processes, class-room interaction and teaching strategies. The work now proceeding is an extension of the fascinating and incisive work in curriculum development carried on in Contra Costa County Schools since 1954 and the development of a curriculum model involving working teams of teachers, curriculum specialists and content specialists.

In developing economic understanding, the Chairman of the Council on Economic Education put the challenge plainly to education leaders thus, 'Does the curriculum provide ample opportunity for a student, during his twelve years of formal schooling to achieve a minimal understanding of economics?' This challenge has been taken up by many American educationalists.

A recent number of the *Bulletin of the National Association of Secondary School Principals* is devoted to 'the challenge of economic understanding'. It has a review of the current statistics of Economics Teaching in the high schools of the USA. The foreword says that 'The teaching of economics long neglected by many secondary schools is now coming alive. The trend is to make students literate on economics'. The Bulletin reported the findings of a recent enquiry which showed that there were in 1964/5 8,057 teachers teaching separate courses in economics and that 82 per cent of these had adequate training to enable them 'to feel comfortable in economics instruction at high school level and 1,478 teachers (18%) not only had a major in economics on their undergraduate program but had also done some additional graduate study. In courses including Economics 10,590 teachers were involved.'

Twenty per cent of students enrolled in grade twelve (18-year-old) in Senior (3 year) high schools were reported as taking a separate course in economics (i.e. 81,683 out of a total of 408,893) and in 75 per cent of all such schools economics was offered as a separate course.
Firm figures were not available to indicate the increase in the proportion of pupils studying economics in 1954/5 compared with 1964/5 but it

was stated 'that the number of students studying economics had doubled during the period'. In the same decade in England and Wales the numbers taking the General Certificate of Education at the summer examinations had increased almost sevenfold:

	'O' Level	'A' Level
1954	1,606	1,582
1964	8,116	10,199

Purdue, Atlanta and San Francisco are by no means the only centres where Joint Council curriculum development projects are located. The Bulletin already referred to listed twenty school systems where work was under way with ten more to be added later this year and six 'Economics Programs in Action' are described by teachers engaged in the work.

Economics in Social Studies

The conceptualisation of the subject matter of economics is also at the root of the Harvard-Newton Project—sponsored by the Newton Public Schools and the Harvard Graduate Schools of Education and of Business Administration. It is aimed at strengthening 'the presentation of economics within the context of the regular social studies curriculum'. The case history approach used here was developed at summer workshops and tried out at first in Newton schools and later in Missouri, Pennsylvania, New Jersey and Massachusetts. The material is essentially for secondary schools as the titles of some of the case studies indicate: the Virginia Company, the Standard Oil Combinations, Sears Roebuck—Montgomery Ward, the United Fruit Company.

The historical case studies prepared for classroom use are designed to help develop students' capacity to think rationally about economic issues, to introduce students to some of the vocabulary of the subject with the context of specific situations and to illustrate some basic economic concepts such as 'the role of savings in the round-about process of capital formation, the operation of the price-market-profit mechanism in determining the allocations of resources on a private enterprise system and the importance of private and governmental decisions in economic activity'.

Another Harvard Social Studies Project with a slightly different slant is based on the analysis of public controversy approach, pioneered by Donald Oliver of Harvard. It has as its main objective training students to examine and analyse, through discussion and argument, the kinds of disputes that gave birth to social conflict, and these include economic issues. Project activities are divided into three phases: development of materials; teaching; research and evaluation. The project staff of four experienced teachers began teaching the three-year programme in the autumn of 1964 to a group of 'average ability' sixteen-year-olds in a public school in the Boston area. Evaluation will use conventional test procedures but will also develop content analysis of oral discussions and personal construct analysis.

In the School of Education at New York University, George Dawson, professor of economic education outlined to me the place of economics in the social studies syllabuses being developed by university and State authorities through the Bureau of Secondary Curriculum

Development at Albany, NY. Preliminary draft syllabuses have been evolved and tried out in selected schools to ensure valid sampling and in a foreword the head of the bureau underlines the change in approach expected of teachers in these words:

> 'We have known that understandings and concepts are built up out of particular concrete details and are made deeper and stronger through additional experiences that repeatedly involve these same understandings and concepts. Knowing all this, much of our teaching has violated every law of learning. We have expected understanding and concepts to grow out of the spreading of generalised accounts. We have confused telling with teaching.'

The Federal Government's social studies program in research for elementary secondary schools includes several projects in which the teaching of economics as part of social studies is featured. Two of these may be mentioned. The one under Lovenstein at Ohio State University, Columbus, which has as its major objective, the improvement of economics at the ninth grade level 'within a context of a nine through twelve sequence of social studies structured as disciplines'. The staff involved includes professors from the fields of education, economics and psychology and from the Bureau of educational Research and Service of the Ohio State University. This project is due to be completed this year and the cost to the Federal Government is given at 221,263 dollars.

The second is based on the Carnegie Institution of Technology, Pittsburg under Fenton. Its aim is to develop for the same age range (15-18) 'a sequential and cumulative curriculum in the social studies for able students'. The entire ninth grade course on 'comparative economic systems' is already being tried out in five high schools. This project is estimated to cost the Federal Government 272,110 dollars and to be completed towards the end of 1967.

A widespread criticism of the teaching of economics at schools of all levels in the United States has been its tendency to 'atomize significant relations into meaningless fragments which pupils find difficulty in reconstructing into a meaningful whole.' It has been argued, for example, that much of what is called thrift education may be fallacious in that it teaches that thrift is good for an economic system, whereas whilst it is true that thrift may strengthen one's character, too much of it under certain circumstances might be ruinous to the economy.

In this country a closer analysis of the issues involved in expecting schools to take on greater responsibilities in teaching economic understanding is needed. In this, as in other aspects of curriculum development, United States experience is highly relevant.

The statistical note in this issue is about changing ratios of teachers to pupils in maintained schools.

Pupils, Teachers and Classes

Although some education statistics can be traced back for nearly a century, it is only since the war that detailed information on class organisation in schools has been prepared. But in spite of the paucity of material at the disposal of earlier education authorities, it is possible to discover very real evidence of their interest in statistics as a tool for planning purposes, and to trace the beginning of some idea subsequently developed by more sophisticated means. And the story began with simple records of a few basic facts. *Statistics of Public Education* record for example that nearly one hundred years ago there were 1.8 million pupils and only 14,400 teachers in public elementary schools—a pupil/teacher ratio of nearly 125, although the teaching staff were supplemented by substantial numbers of 'apprenticed pupil teachers'. This was in 1870/71, the first year following approval by Act of Parliament of the principle of compulsory education. There are no details of class sizes and organisation, but the early statistics gave some information about teachers' status and qualifications.

Over half a century later the elementary school population had grown to 5.6 million and the teaching force to 166,400, some 35.5 pupils to each teacher. The figures are not strictly comparable, but there is ample evidence both of great progress and of changing attitudes to education and to the value of the recorded information itself.

In the years immediately before the Second World War, the populaton of these schools had fallen to a little over five million while the teaching force had increased slightly. In 1937/38, for example, the pupil/teacher ratio was about 30.5, an improvement achieved more as a result of the falling school population than of any positive teacher recruitment.

It is evident from the changing character of the published statistics and their explanatory material that education authorities must have been conscious for many of the earlier years especially of the need to reduce class sizes. A table was introduced in 1925/26 to illustrate progress. This shows that in 1920/21 nearly a quarter of classes had fifty or more pupils and nearly 4 per cent sixty or more. While the number of classes remained almost stationary at just over 150,000, the corresponding percentages (which are on a slightly different basis) had fallen steeply in the next five years to 13.3 and 0.16. The over-sixty classes had virtually disappeared by 1938 and the percentage of classes with more than fifty pupils was down to 1.4. The number of classes too had fallen to about 145,000.

The 1944 Act introduced among other things new standards for class sizes. By 1951 the maintained primary and secondary school population was well on the way to six million, but the pupil/teacher ratio averaged

26.4. In spite of a very steep rise in the school population in the next few years, the ratio generally continued to fall. Last year, it was down to 23.5 as a result of almost 40 per cent increase in the teaching force since 1951.

Today there are many more classes, partly because the number of maintained pupils is over seven million and partly because classes are themselves smaller. There is a negligible proportion of over-fifty classes and forty is now the scarcely tolerated maximum. In 1965 there were 17,553 classes, representing 7.6 per cent of the total, with more than forty pupils.

In the same year there were 286,000 full-time teachers and a part-time teaching force equivalent to about 16,000 full-timers. Taking account of this, the average number of pupils to each teacher was 23.5, and the average size of classes as registered, 30.6. The table below shows the figures for January 1965 compared with ten years earlier.

Pupils and teachers in maintained primary and secondary schools

	Primary		Secondary	
	1955	1965	1955	1965
Pupils	4,600,862	4,273,101	1,914,814	2,819,054
Full-time teachers	147,912	144,075	92,433	142,013
Part-time teachers	827	7,009	1,957	8,723
Total full-time equivalent	148,739	151,084	94,390	150,736
Pupils per teacher	30.9	28.3	20.3	18.7

These figures show that, while the primary school population fell by over 7 per cent in ten years, the teaching force increased by almost 2 per cent with a consequent improvement of over 8 per cent in the pupil/teacher ratio. At the same time the secondary school population showed a marked increase of 47 per cent which was matched by a 60 per cent increase in the teaching force. This reflects the campaign during the 'fifties to cater for the 'bulge'. A feature of the figures is also the marked increase in the part-time teaching force.

Regional statistics show significant variations in pupil/teacher ratios, especially in the primary schools. The table below shows a maximum regional divergence of 1.1 from the national average both for all schools and for secondary schools, but as much as 3.2 from that for all primary schools, or a difference of 4.6 between the lowest ratio (for Wales) and the highest (the North West).

Pupils per teacher in primary and secondary schools in the regions

	Primary	Secondary	Total
Northern	28.9	19.6	24.5
Yorks E. & W. Ridings	28.8	19.2	24.1
North Western	29.7	18.7	24.3
North Midland	28.2	19.0	23.7
Midland	28.4	19.0	23.7
Eastern	27.9	18.4	23.1
Metropolitan	27.9	17.6	22.4
South Eastern	28.6	18.3	23.2
Southern	28.3	18.3	23.3
South Western	28.0	18.8	23.4
Wales	25.1	19.4	22.5
England and Wales	28.3	18.7	23.5

Junior and Senior Classes

Statistics of Public Education of forty years ago also introduced comparative figures to show the extent of reorganisation into junior and senior schools and departments. This reflected a movement which, according to the notes, was common with many education authorities who were seeking to provide greater facilities for the advanced instruction of older children.

Classification into these categories is still a feature of modern education statistics, but figures of pupils, teachers, and pupils-per-teacher are now expressed both in terms of junior and senior classes in maintained schools and classes in primary and secondary schools. Variations in the pupil/teacher ratios for the two types of classification occur because of the inclusion of all-age schools which contain children of both primary and secondary school ages, but are arranged for statistical purposes under the primary head.

The junior/senior class arrangement was therefore more accurate, but the difference is no longer significant. All-age schools have declined under reorganisation to the point at which they contain less than 1 per cent of, for example, the 13-year age group compared with 11.4 per cent only ten years ago. As a result, pupil/teacher ratios for 1965 expressed either way have converged to show only a very small variation.

Junior and senior classes as registered are set out to show the proportions which are regarded as oversize in terms of current standards, namely forty and thirty respectively. There have been significant reductions of well over half in the percentages of junior classes over forty and of pupils in these classes in the ten years ending 1965. In spite of the greatly increased senior class population in this decade, there have been marked reductions too in the average size of class and in the percentages of classes of over thirty and pupil numbers in them. This is shown in the next table.

Class sizes in maintained primary and secondary schools

	1955	1960	1965
Junior Classes			
Average size of class	35.0	32.7	32.6
Percentage of classes over 40	29.4	16.0	12.4
Percentage of classes over 30	71.5	64.4	65.8
Percentage of pupils in classes over 40	37.4	21.4	16.4
Percentage of pupils in classes over 30	80.7	74.4	75.1
Senior classes			
Average size of class	29.6	30.0	27.9
Percentage of classes over 40	5.2	3.9	1.4
Percentage of classes over 30	49.4	53.5	39.8
Percentage of pupils in classes over 40	7.6	5.6	2.2
Percentage of pupils in classes over 30	59.4	62.9	48.8

Class Sizes as Taught

Class sizes in the published tables generally mean numbers of pupils *registered* in each class. In *Statistics of Education* 1964, information was given for the first time on the actual size of classes or groups as *taught* together in maintained secondary schools at a particular point in the school time-table. The information was obtained from each school for a selected period on the day of enumeration, 23rd January.

The schools were sub-divided into five equal groups, each of which submitted its returns in respect of a different one of the five periods, the first, third, fourth, fifth and final of the chosen day. The exercise was repeated in 1965 on 28th January.

These new figures show that in 1964 only 29 per cent of classes as taught had thirty-one or more pupils, and that 43 per cent of pupils were taught in classes of this size. Similarly, figures show for 1965 that 27 per cent of classes were over thirty and that 40 per cent of pupils were taught in them. The average size of all secondary classes as taught was 24.1 in 1964 and 23.6 in 1965. In the table below, the relatively high figures for pupils in the biggest classes is explained by the assembly of large groups for special purposes, for example physical education and choir practice.

Size of secondary school classes as taught

	Up to 30	31–40	41–50	51 & over
1964				
Percentage of classes	70.7	27.6	1.0	0.7
Percentage of pupils in classes	56.8	38.8	1.9	2.5
1965				
Percentage of classes	72.8	25.9	0.8	0.5
Percentage of pupils in classes	59.7	37.1	1.5	1.7

Variations in regional circumstances are also reflected in the figures of secondary school classes as taught. Figures published for January 1965 show that while only 21.6 per cent of classes in the south-east have thirty-one or more pupils, 31.4 per cent in the East and West Ridings of Yorkshire are in this category. The corresponding percentage for England and Wales is 27.2. The next table also shows that the greatest variations in the numbers of secondary school pupils in classes of thirty-one and more were shown by the same two regions, with 33.3 and 44.6 respectively.

Regional secondary school classes as taught

	Percentage of classes of 31 and over	percentage of pupils in classes of 31 and over
Northern	31.0	44.0
Yorks E. & W. Riding	31.4	44.6
North Western	26.3	38.6
North Midland	28.6	42.3
Midland	29.7	43.8
Eastern	26.6	39.7
Metropolitan	24.3	36.9
South Eastern	21.6	33.3
Southern	25.3	38.3
South Western	27.2	40.9
Wales	28.9	42.9
England and Wales	27.2	40.3

In Response To . . .

The editors of Trends *welcome statements by readers in response to articles they have published. Such statements will be published from time to time, together with comments by the author of the original article.*

Computor Education

F. J. Stockwell, general adviser to the London Borough of Havering writes:

In the January 1966 issue of *Trends in Education*, D. G. Toose, HMI, wrote an article on 'Education for the Computer Age'. *Inter alia*, he said '. . . many . . . recently designed mathematics syllabuses in schools . . . include some treatment of relevant topics such as linear algebra, statistics and flow charting, . . . but any extensive specialist extension to include . . . more than an introduction to program coding or *the installation and use of computers in schools, would need considerably more justification.*'

It is interesting to compare this with the words of John Wren-Lewis, who, in the *Guardian* (6th December 1965) writes of '. . . the remarkable action of the London Borough of Havering in buying (with some help from industry) a full-blown working electronic computer for the Royal Liberty School (a maintained grammar school for boys) to enable pupils studying all manner of different subjects in this and neighbouring schools to get the feel of the new approaches that become possible with these modern aids to calculation'.

The fact is that the very rapid increase in the use of computers in this country has found us only partially prepared to staff them and to appreciate their full significance. We realise that they are going to become increasingly important in the everyday lives of everyone of us, and this alone is sufficient justification for there to be some place for computer studies in the curriculum. The coming generations must be made aware that, for instance, it will soon be impossible to maintain any large business without the control and management which only a computer can provide. Students who leave school without an awareness of the significance of terms like 'data processing', 'time series', 'reliability research' and 'market research' will not be fully equipped to take their part in modern society.

Of course, it might be supposed that a computer installed in a technical college might well meet the needs of local schools. But if the tasks which Mr Toose has already outlined for the technical colleges' computers are to be tackled robustly, there will be little computer time left for anything else. At the same time the headmaster of the Royal Liberty School feels that: 'the psychological barrier, created by using a machine remote from the school for very limited periods . . . inhibits the pupils' approach to programming. . . . To teach and give the essential practical experiences in this brand of numerical analysis we need free access to a computer'.

It is almost axiomatic in numerical analysis that one has not really made the subject one's own until one can code it for a computer. The usefulness of programming a computer from the educational point of view is seen by examining the thought processes involved in programming a problem for a computer. First, the problem must be in, or converted to, mathematical form, this latter requirement demanding a high degree of analytical thought. Secondly it must be presented as a flow diagram showing the steps of the calculation, the sequence of cycles and the logical decisions required. Finally it must be converted into a code to enable the machine to understand the instructions. The fact is that in writing a program every conceivable possiblity must be taken into account. Educational psychologists will appreciate the value of such program writing in view of the opinion expressed by Professor Ringet about the nature of adolescent reasoning as a search among all possible logical combinations.

The introduction of computers into schools is but an extension of the use of calculating machines in primary and secondary schools. The Associated Examination Board in anticipation of the rise of numerical analysis and electronic computers has already instituted an 'A' level paper on computations. This places emphasis on desk calculators, not on electronic digital computers, the tool which would be used in practice. It is not good enough to provide out-of-date equipment. Like the other sciences, mathematics requires modern equipment and adequate laboratory space in which to use it.

We have not so far considered the vocational aspect of the training which school computers might provide. The sudden increase in computer installations which is imminent in this country demands an equivalent increase in staff. Manufacturers are unlikely to be able to meet the need to train these staff, and if technical colleges are already fully occupied training a whole host of scientists and technologists who require computer techniques for their own work, it could well be that the sixth forms of computer-equipped schools might supply the balance of staff for computers in industry and commerce. There are aspects of programming, the coding and routine parts, which do not demand graduates, and this is just as well, for it is likely that if all the appropriately qualified graduates remained in computer work there would still be a dearth of computer staff. Fortunately, interested bodies, such as the City and Guilds Institute of London, are aware of the position and are devising schemes to deal with such a scarcity. Adequate training of systems analysts in schools might obviate the need for crash programmes, and might provide instead not merely skilled technicians but educated individuals with computer techniques among their attributes.

The Royal Liberty School, aware of the pressing necessities of the situation, began to advocate the notion of a computer in a school in 1963. The former LEA was not able to offer any financial aid for the project, and the school decided to go it alone. By April 1964, in only four months, the school had raised £2,000. By April 1965 this sum had swollen to £12,000 and the school by then had secured the financial and, equally importantly, the moral support of its new LEA, the London Borough of Havering.

A variety of machines was investigated, and finally an Elliott 920B Computer was ordered. The school was aided by the Elliott Company by the loan of a 920A Computer until the installation of their own 920B machines (now known as the 903) in February of this year. Courses using the Elliott machine at the school began in September 1965.

The school computer department has already featured in a BBC-TV documentary programme, and it has arranged interesting and informative conferences on computer topics for local government officers and sixth formers. The work conducted at the school has already demonstrated that this development in education stimulates interest, illuminates mathematical concepts, ideas and operations, and gives worthwhile practice in logical thinking. Further, in addition to imparting a useful skill, the experience makes the pupils examine their own work in more detail and with more thoroughness. As the result of the school's activity the University of London has willingly agreed to set a paper in computing science for 'A' level in June 1967.

Arts Pupils

The school is running computer programming and data processing courses for sixth form arts pupils in addition to its sixth form science courses. Using newly acquired punched tape equipment, they study techniques used in industry today and apply computer-oriented methods to solve realistic business problems. The course covers management science, that is, the application of mathematical techniques to help management make decisions. In the future they will deal with stylometrics and the machine translation of languages.

The school does not always find it necessary to go into the less familiar business world to find suitable problems to tackle. Practical problems are ready made in school administration which provides realistic projects at first-hand for pupils.

The school's computer is used for courses in 'A' level numerical analysis and sixth form management science, and in the future third year sixth form students will do advanced programming and numerical analysis. Eighty upper sixth form boys are doing the computer course in business administration compared with twenty-four lower sixth formers doing 'A' level work in computer mathematics. In addition, the computer will be similarly used by another grammar school, a technical school and a comprehensive school of the same Authority. Later, the use will be extended to other grammar schools and possibly colleges of further education. It is already in use by an evening college, where it secured the highest enrolment for any course except one. Later, too, its use will be extended to younger boys of the school.

Brief reference to the cost of the computer has been made above. In the final account about two-thirds of the cost comes from industry and one-third from the LEA. The LEA also met the cost of converting cloakroom accommodation into laboratory, office and teaching spaces. Running costs are perforce high, but it is thought that the cost *per capita* of providing a specialist computer education for a sixth form boy will work out at about £8 p.a. This is not too great a price to pay to meet an urgent national need, and, of course, as the use of the computer spreads, the *per capita* cost will fall.

The machine itself is one of the latest and most modern scientific digital computers and is capable of being used for data processing work. It has an on-line paper-tape punch and reader, and calculating machines and tape editing equipment are used off-line. Its expectation of life is some ten years, and hence it is designed to be capable of expanding in order to remain up to date. Extra storage units can be added as appropriate. Punched paper-tape is preferred to punched cards because the cost of the latter and that of their peripheral equipment can easily be thirty or forty times as great as that of punched paper equipment of similar capabilities.

The block in which the equipment is housed is double glazed but little else is done to regulate working conditions which have tolerances permitting temperature variations between 0° and 55°C and humidity variations between 10 per cent and 80 per cent. However, if magnetic tape is later added it will be necessary to limit these variations to 21(±2)°C and 40—60 per cent relative humidity. In addition to the computer and its sets of tape producing and reading apparatus, the accommodation contains sets of all library programmes, reference copies of operating procedures and programming manuals. There is also a reference library of books and periodicals.

Of the future generally it may be that schools will be connected by landlines to a large central computer. Such an idea might be particularly suitable for rural areas. Schools might use one half of the Borough Treasurer's computer. Another possibility would be a mobile classroom, owned by the LEA with a computer and tape preparation equipment in it, travelling from one school to another.

D. G. Toose writes:

I was aware of the interesting and valuable pioneering work in computer education developing at the Royal Liberty School, and indeed, at a number of other schools. Mr Stockwell implies, in his account of this work, that he and I are at variance on the function of schools in computer work. This may not be so, and I say, in my original article, that '. . . it is essential that the teaching in the schools should be conducted with an acute awareness of the place of computers (and, indeed, technology generally) in modern society.. . . .' Mr Stockwell develops this theme most admirably, and it is encouraging to see that most of the school's efforts have this purpose.

Where we may differ is in the part schools should play in the training of specialist computer personnel, and in the general provision of computers in schools and the development of schools as computer centres. The training of operators and programmers for specific computer systems will remain the task of the computer manufacturers and users, and it is unlikely that any part of this intensive training programme can be undertaken by any section of the educational system. It is probable that further education establishments will have to develop supporting courses of

relevant vocational education, but the main, and vitally important function of the schools must be to provide a suitably oriented general education for all their pupils.

No one will dispute the tremendous advantages to be obtained by any educational institution having its own computer. Ideally, no doubt, any school or college engaged to any extent in computer education should have its own computer, but with the current costs of acquiring maintaining and running even the smallest computers, such a solution is impossible. Currently the Department of Education and Science is encouraging the acquisition of small computers by as many colleges of technology as can justify a reasonably economic use of them. Neighbouring schools are actively encouraged by the colleges to make as much use as they wish of the computer facilities. As Mr Stockwell says, this is not an entirely satisfactory arrangement from many points of view, not the least of which is the apparent reluctance of many schools to make use of the present facilities.

It is worth noting that if the present criteria for approval of computers for colleges of technology were to be applied to schools, then no school could, at present prices, justify the installation of a computer. These criteria include both student-hours and running costs. The latter comprises not only stationery operating and maintenance charges but also the amortisation of the capital cost, which usually constitutes a high proportion of the running expense. In considering the per capita *figure of £8 per annum quoted by Mr Stockwell, due regard must be paid to the fact that, presumably only one one-third of the normal purchase price was involved. In any general case, the realistic price of such provision would need to be considered in the light of normal equipment expenditure for sixth-form work. It would seem probable that the eventual provision of suitable data-links from both schools and the smaller colleges to a number of large central computers may offer the most economic realistic answer. The required network of central computers would then more likely be college-based than school-based and the financing and organisation undertaken by consortia of LEAs rather than by a single authority.*

Meanwhile a much greater use of the computing facilities already in the colleges could be made by schools, thus preparing the way for much more rapid development in computer education at all levels and for the consequent machine provision.

Some of the articles that appeared in TRENDS **during 1968**

Administration

Growth and Productivity
—needs and resources

The New Degree System
—a look at CNAA

Training and Education
—the Industrial Training Act

Comparative Education

The Relevance of Comparative Education
—a survey of ideas

The Challenge of the Consumer
—adult education in Switzerland

The Abitur Examination in Germany
—the German equivalent of GCE

Curriculum Topics

At First Hand
—children's creative writing

The Case for World History
—history for 'one world'

Enquiry and Research

Educational Research Today
—introduction to the subject

Developments in Programmed Learning
—where are we programming?

TV in Teacher Training
—the report of an experiment

General Articles

The Place of the Parent
—Home/school relationships

Youth Work in Teacher Training
—report on new experiments

Teamwork in Careers Guidance
—a new approach to an urgent problem

Statistics Interpreted

Further Education

Education Expenditure

GCE Results

Reviews

On From School

University Choice
edited by Klaus Boehn
Penguin Books 7s. 6d.

Into Work
by Michael Carter
Penguin Books 4s. 6d.

As a young sixth-former over forty years ago this reviewer was almost certain which of two universities he was going to; it would have been a sign of failure not an act of choice to have considered going to 'another place'. The atittudes of a sixth-former today are not so conditioned by home and school; his choices are wider and more complex; his difficulty is to scramble to the position at which choice is possible. This book is designed to help him. 'Choice,' Mr Boehn says in his introduction, 'requires information and information requires analysis. . . . These essays ought to be sufficient to form the first stage of a reconnaissance of the university choice. They need to be supplemented by wider reading and investigation', and Mr Boehn rightly commends the *Compendium of University Entrance Requirements* issued annually by the Vice-Chancellors' Committee.

The book contains thirty essays by heads or members of university faculties covering broadly representative disciplines; thus German represents modern languages and the two essays on civil and electrical engineering the whole range of engineering; a few contributors cover several related disciplines in a single essay. Each tries to give a don's view of what university study of a discipline (or group of disciplines) should mean to the student, the likely development of the subject, its vocational opportunities, and the preparation at school most relevant to a university course. The writers were invited to give their personal views and in the result most of them write with wit and feeling as well as clarity. Two points will strike the young explorer of this ground. First, few sixth-formers need feel they are the captives of their school subjects. The subjects taken at 'A' level vary surprisingly in the extent of their influence on choice of university course. The university entrant choosing to read physics, history or music will be expected to have good qualifications already in those subjects; other disciplines, even if the subject is taught at school, have no such requirement. Second, the occupational significance of choice of university course is much less powerful than might appear. Professor Zeeman, writing on mathematics, offers as one of the two principles that should govern the choice of course, 'A student should choose to study what he enjoys most.'

It would be unfair to expect *University Choice* to cover more than the field of its title; some recognition that comparable fields exist could reasonably be expected. Its flaw is that it does not adequately indicate that there are courses in technical education leading to degrees or their equivalents. The essay on architecture is the only one to deal fairly with the parallel system; the reference is picked up in the introduction but only in the context of architecture. There is an alternative route, for intending engineers and others.

The scope of *Into Work* by Michael Carter on the other hand is less wide than its title suggests. After stating his purpose to examine in detail the process of transition from school to work the author concerns himself almost entirely with secondary modern pupils, most of whom come from working families and with their later experiences in work and further education. As in his earlier study, *Home, Work and School*, he is still absorbed in the fate of ordinary children in respect of whom he finds humanity continues to be affronted. His indignation for them is convinced and passionate, and the best parts of this uneven book are those sections of chapter two and three in which, as a social anthropologist, he analyses from first-hand experiences the attitudes of working-class families and of the young people who come from them, expressed often in their own salted and pithy comments. But the book should not be taken as a comprehensive review of the experiences of all young people in their passage from school to work.

Nor can it be taken as anything but a partial account of our educational and

related services. Michael Carter does not adequately recognise that conditions are changing fast and on the whole for the better; his own book has dated slightly in its passage through the press. He draws extensively not only on his own Sheffield research, already seven years old, but also on other published educational and social research which he is occasionally inclined to use uncritically. In particular his assessment of education, especially of further education, takes insufficient account of the substantial developments of the last seven years.

In his assessment of the Youth Employment Service he does his best to be just but does not wholly succeed. 'In the scientific sense,' he says, harshly the 'Youth Employment Service cannot substantiate the claim that it gives vocational guidance.' But his view of vocational guidance seems to differ from that of the Service only in the importance he attaches to the objective assessment of abilities, interests and aptitudes. It is likely that the Service uses tests too little; it is also likely that the principal value of tests in vocational guidance is in their application to the exceptionally difficult case rather than to the generality. There is justice in some of Michael Carter's other criticisms of the Service, and these are endorsed by the recent report on *The Future Development of the Youth Employment Service*, to which he has been able to include only the briefest reference; that Report also records substantial progress in the Service to which Carter does less than justice.

R.S.D.

Education

by Malcolm Seaborne

***Studio Vista* 45s.**

This is the eighth volume in the 'Visual History of Modern Britain' series, which is edited by Professor Jack Simmons, and which sets out to provide a popular introduction to various aspects of English social history. The author of the present volume is a lecturer in education at the University of Leicester who has had considerable experience of teaching and of educational administration.

As an introduction to educational history for the general reader the book has important virtues. It is clear. It is accurate (the attribution of the opening of Durham University to the year 1883 is clearly a misprint). And, in view of its limited scope, it is unusually comprehensive. The divergent strands of development in Scotland and Wales, for instance, are skilfully disentangled; and there are useful accounts of training for the professions (particularly law and medicine). Room is found even for a brief reference to the growth of the Youth Service, though not for the Albemarle Report.

Above all, the writer has succeeded in bringing out the extent to which nineteenth-century educational development was bedevilled by the existing caste system. There is, for instance, an illuminating quotation from a speech made by Gladstone at the opening of the Liverpool Collegiate School in 1843 in which a rigidly stratified system of education is blandly accepted; and the part played by the Clarendon and Taunton Commissions in hammering down the last nail in the coffin of equality of opportunity is clearly demonstrated.

This being so, it is surprising that the writer is not equally percipient in dealing with the origin and growth of adult education. Evening Institutes are completely ignored. Albert Mansbridge and the W.E.A. receive a bare mention. And there is little indication of the debt which adult education owed to political radicalism, to the Chartists and the New Socialism of the eighties and nineties, to the insatiable hunger for learning among the working class which drove a man like Joseph Barker of Leeds, a spinner working 12 to 16 hours a day, to teach himself Latin and Greek with the aid of a book propped against his machine.

These are serious omissions. But it must be acknowledged that to attempt to compress the whole history of British education into 40,000 words is an impossible undertaking. The remarkable thing is that the writer has come so close to achieving it.

A.E.E.

The Quality of Education in Developing Countries

C. E. Beeby

Oxford and Harvard 32s. 6d.

Developing countries are faced, in their educational planning, with situations and problems vastly different from those which have been more or less satisfactorily dealt with by countries whose systems of education have been developed pragmatically over a long period of time. The process of development in many 'young' countries has of necessity and for all sorts of reasons, social, economic and political, to be 'compressed' into an artificially determined time-scale: national development and indeed survival may well depend on the degree of success with which the problems inherent in this process of compression are solved. Against the background of an overpowering sense of urgency the traditional conservatism of the teaching profession is often a major obstacle.

Dr. Beeby is at pains to stress that in developing countries this conservatism has its roots, as often as not, not so much in obscurantism and unwillingness to experiment, as to a basic lack of a sense of security which itself springs from an all too restricted educational experience. A vicious circle indeed! If, however, and in pursuit of whatever may be the over-all national objectives, the quantitative expansion of educational systems is to make sense and achieve results, it must, in Dr. Beeby's view, be matched all along the line by a qualitative expansion which, it must be feared, can only retard, possibly to an unacceptable extent, the achieving of targets on the realisation of which so many wider national hopes depend.

He sees the only possible effective answer to this problem in the field of teacher education. He poses four admittedly arbitrary stages through which any evolving educational system must pass and he sees them in terms of an ever-increasing gap between the knowledge (and therefore the sense of security) possessed by the teacher and the knowledge possessed by the pupil at any one time. This sense of security, he says, 'only comes when the gap in general education between class and teacher is wide enough'. Only, in fact, when the gap is wide enough will the teacher have sufficient confidence with which to tackle those new techniques and new media which alone seem to offer some hope of reconciling the often conflicting claims of a logically expanding educational system and an over-all economic plan based upon wider considerations. Dr. Beeby has a good deal to say about these techniques which is of interest not only to those concerned with education in developing countries, and he sounds a salutary note of caution when he says that their usefulness in any given situation is still determined by the amount of knowledge and skill possessed by those who are expected to use them. There is much also of general 'classroom' interest in this fascinating book. Fundamentally, however, Dr. Beeby is concerned with putting forward a reasoned and convincing plea for greater attention to quality in educational planning. He calls for more research into the factors which determine the development of educational systems: 'We are still grievously ignorant of how a school system actually does develop.'

Quantity and quality are, he says inextricably linked all along the line and though there is much encouraging evidence, of growing co-operation between educator and economist in planning procedures qualitative considerations still tend to be relegated to second place. Although the educator may hope 'rarely if ever' to be the person to make the final decision on broad educational strategy, he must resist any attempt to reduce him to the status of a mere observer at the planning table. His contribution to discussion may never in fact be the final or deciding contribution, but it is so vital that he should stay, and be encouraged to stay, as close as possible to the place where the policy decisions are taken. After all, as Dr. Beeby so rightly points out, he is the only person around the table whose professional duty it is to think first and foremost of the interests of the child for whose personal and human development any good educational system should be designed.

J.G.M.A.

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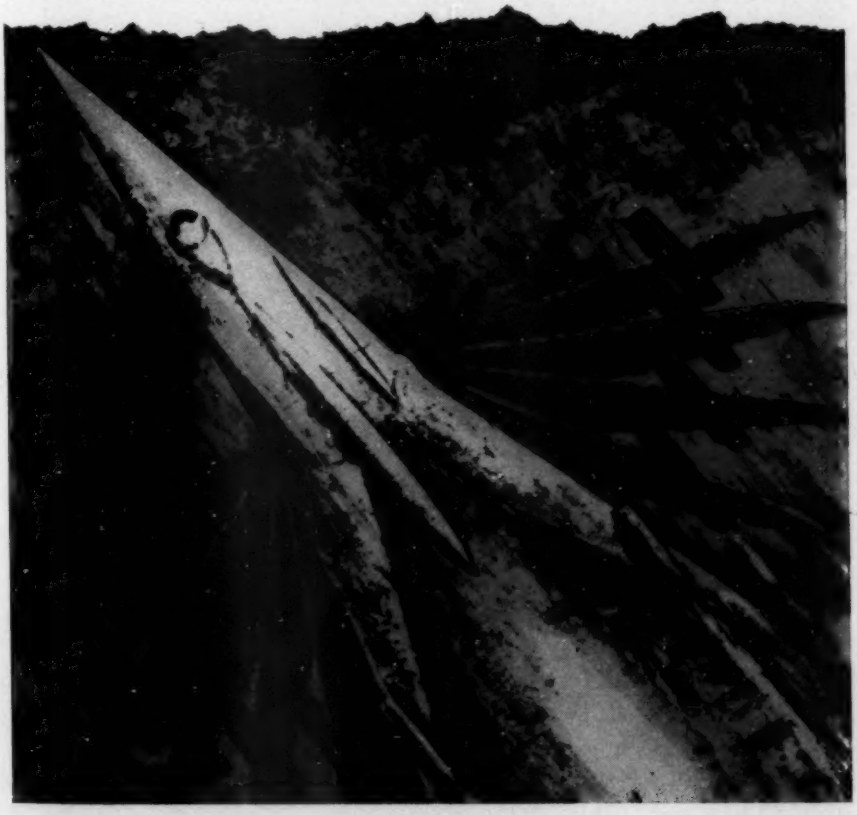

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